FEBRUARY, 1949

THE Refrigeration INDUSTRY

AIR CONDITIONING EQUIPMENT

MERCHANDISING • INSTALLATION • MAINTENANCE

Men of the Month

THE REFRIGERATION CONTRACTORS

See Pages 28-46

DON'T MISS: WHAT CONTRACTORS WANT TO KNOW . . . If you are interested in any phase of the refrigeration and air conditioning contracting business, you will want to read this full report of NARC's convention program

There's 40% PROFIT FOR YOU in HARDWARE REPLACEMENT

***PLUS YOUR REGULAR TIME AND SERVICE CHARGE**

For a complete, satisfactory service job, ***check the hardware*** as well as the compressor. The new Grand Rapids Brass price list guarantees you 40% on replacement hardware sales, plus regular service charges. You'll make your commercial customers happy too, — because new hardware can bring new efficiency, new good looks, new operating economy to their old display cabinets, back bars, and coolers.

Earn up to $24.64 on new hardware for this cabinet

A single cabinet like this runs into real money for you! Let's figure your hardware replacement profits on this one job. There are hundreds of opportunities like this in your community!

Hardware Needed	Retail Price
8 Locks No. 4722	$24.00
8 Strikes No. 3843	8.00
16 Hinges No. 15345	29.60
Hardware costs customer	$61.60
Your cost (less 40%)	36.96
Your PROFIT on Hardware	$24.64

Plus **REGULAR INSTALLATION CHARGE**

FREE — Ask Your Jobber

This manual tells how to sell and install replacement hardware. Full directions and detail drawings. If your jobber can't supply, write direct and give us his name.

PREFERRED for NEW EQUIPMENT . . . PREFERRED FOR REPLACEMENT, TOO

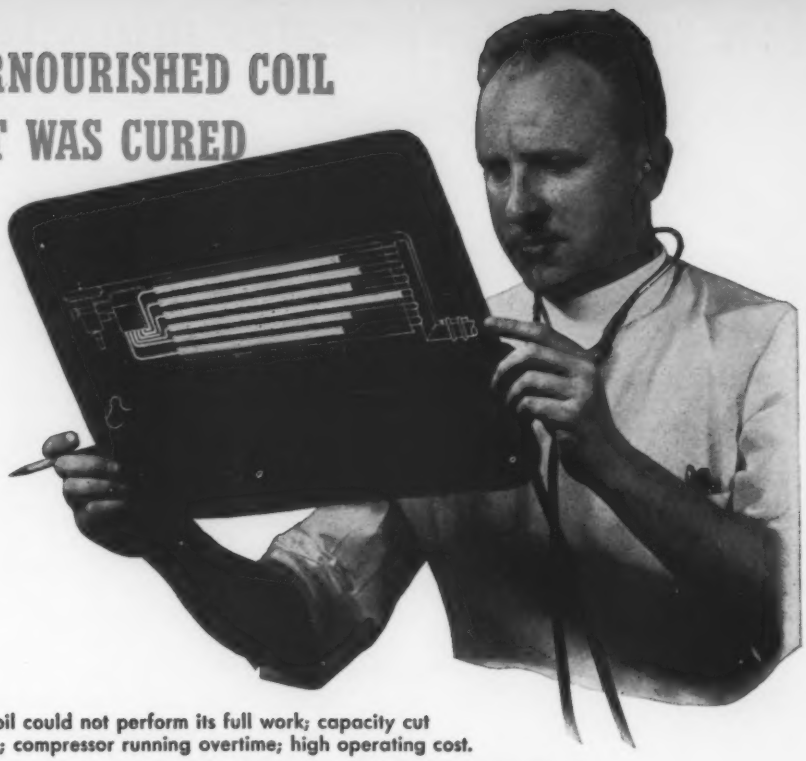
Now you can give your service customers the identical lock preferred by leading makers for their best commercial cabinets. Available in a full range of sizes . . . all providing the exclusive, positive "living action" principle engineered by Grand Rapids Brass for lifetime performance. Equally handsome and sturdy are hinges by Grand Rapids Brass . . . made with self-lubricating Oilite bronze bearings and stainless steel pins. Get them from your jobber . . . he can supply everything you need, from massive walk-in hardware to the smaller sizes. Demand and get the genuine.

Grand Rapids Brass Company

Division of **CRAMPTON MANUFACTURING COMPANY**

Grand Rapids 4, Michigan

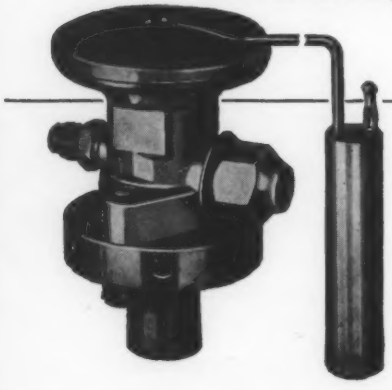
THE CASE OF THE UNDERNOURISHED COIL ...AND HOW IT WAS CURED



SYMPTOMS: coil could not perform its full work; capacity cut ⅓; compressor running overtime; high operating cost.

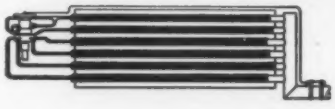
DIAGNOSIS: coil was suffering from malnutrition caused by uneven distribution; "flood-through" one circuit to thermal bulb was throttling all other circuits.

PRESCRIPTION: install one (1) ALCO Multi-Outlet Thermo Valve which feeds all circuits ***equally*** and accurately meters refrigerant at point of expansion ***within valve body.***



RESULT:

complete cure effected; all circuits now functioning full-time; coil capacity restored to normal; running time and operating cost substantially reduced.



ALCO MULTI-OUTLET THERMO VALVES

Available at your wholesaler's for all refrigerants and applications; ½ to 50 tons FREON-12, 2 to 36 outlets. Ask for our Bulletin 180.

3527

ALCO VALVE CO.

843 KINGSLAND AVE. • ST. LOUIS 5, MO.

Designers and Manufacturers of Thermostatic Expansion Valves; Evaporator Pressure Regulators; Solenoid Valves; Float Valves; Float Switches.

How to turn water into silver and gold

TEMPRITE Water Coolers meet all requirements of the National Bureau of Standards. Approved by Underwriters' Laboratory.

RECIPE: Combine a full measure of your selling energy and experience with a good dose of creative imagination. Add to this the universal need for cool drinking water. Combine with this mixture the complete line of quality Temprite Water Coolers.

Then step out and sell. Watch the nice cool water turn into bright, sparkling silver and gold

You can do it . . . in season and out of season . . . *if* you follow just 3 pioneering principles of sound salesmanship . . . as they relate to cool water. Here they are:

1. Get to know the story of DRINKING WATER backwards and forwards . . . what it really means to good health, to work-efficiency and to personal comfort in *every* kind of weather.

2. Talk in terms of your *immediate* prospects' needs. If it's health and work efficiency. Talk it. If it's customer good will. Talk that. If it's employee morale speak about employee morale.

3. It's better to *never assume* that your prospect knows a single thing about the real value of adequate water intake. Tell him *everything*, especially why drinking water should be cool!

4. The Water Cooler Story will give you the information you'll want. Write for your copy now.

New sales-magic with Temprite Coolers

THE ATTRACTIVELY STREAMLINED BUBBLER and sparkling stainless steel top were designed by Temprite to offer the very last word in sanitary protection! Easy finger tip pressure starts a smooth, steady flow of perfectly cooled water . . . without spurting or splashing! Unusually rugged construction and careful workmanship insure long life and perfect operation.

AGGRESSIVE dealers and distributors throughout the country are working new sales-magic with the attractive, sturdy and efficient Temprite Water Coolers.

Some mighty good reasons are . . . Temprite is available in a complete range of models for every type of commercial or industrial application, hermetically sealed or open type, air cooled or water cooled, for AC or DC and for odd frequencies or voltages.

You can offer the streamlined styling of the pressure type model or the neat bottle type cooler. (Foot pedal attachment and glass filler are optional equipment.)

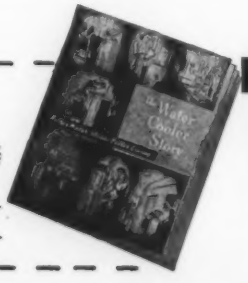
WHEN YOU SELL TEMPRITE you can sell with complete confidence! *Every unit is backed by the name Temprite, incorporated in a very comprehensive 5-year warranty and protection plan.* Temprite Coolers are made by men who know water cooling from long years of experience in all phases of liquid cooling. Know-how and integrity make a good warranty.

TEMPRITE PRODUCTS
41 PIQUETTE AVE.
DETROIT 2, MICH.

Please send me details regarding your distributor franchise for my territory and also send me my free copy of the "Water Cooler Story."

Name _____

Address _____



Temprite

Products Corp. 41 Piquette, Detroit 2

Manufacturers of commercial and cabinet type water coolers, industrial water coolers, carbonators, draught beer coolers, soda fountain coolers, temperature control valves, oil separators, equalizer tanks, heat exchangers, etc.

FEBRUARY, 1949

VOLUME 6, NO. 2

❖

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THE COVER . . . Because the refrigeration contractor is becoming an increasingly important factor in the industry, these men and others who participated in the recent convention of the National Association of Refrigeration Contractors rate a special "Men of the Month" title. You'll find a full report of their "Know-How Show-How" meeting beginning on page 28 of this issue. *(Photos by Irving Alter, Harry Alter Co.)*

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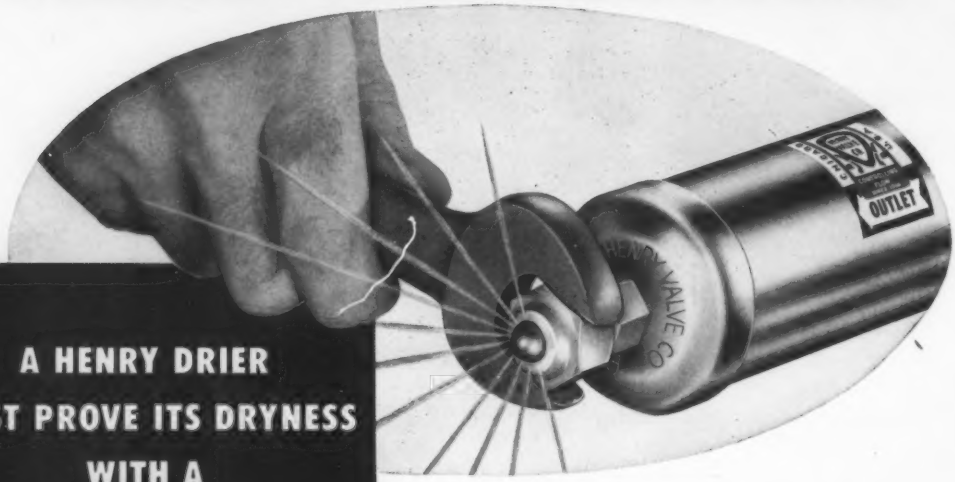
EVERY HENRY* *Abso-Dry* DRIER

CARRIES THIS GUARANTEE



A HENRY DRIER MUST PROVE ITS DRYNESS WITH A

HISS

If it does not hiss, your jobber will replace it free of charge.

Every Henry Abso-Dry Drier with flare connections is pressure sealed with dehydrated air. When the flare nuts and seal bonnets are loosened at the time of installation, this air escapes with a hiss, indicating that the dehydrant is in factory-fresh condition and that the unit is free from leaks. THE ABSO-DRY PROCESS IS AN EXCLUSIVE HENRY PATENT.

The Henry Abso-Dry process gives an on-the-job confidence that no other drier can give, an assurance that the dehydrant has maximum absorbing efficiency when installed in a refrigerating system.

In addition to the advantages offered by the Abso-Dry process, Henry gives you in most driers these additional features:

1. A patented dispersion tube that exposes the entire volume of silica-gel to penetration by the refrigerant.
2. A patented dehydrant compression spring that reduces dehydrant abrasion.
3. A 30 x 250 mesh monel filter that will not collapse under any ordinary system pressure.
4. Forged brass end cap construction with integral connections. Wide wrench flats.
5. Patented 8-Bolt distortion-proof flange design in cartridge type driers.
6. Silver brazed construction.
7. Polished and lacquered natural brass finish.
8. Driers with flare end connections furnished with flare nuts and seal bonnets.

ON YOUR NEXT JOB USE HENRY *Abso-Dry* DRIERS AND NOTE THE DIFFERENCE

SOLD BY LEADING WHOLESALERS

HENRY VALVE CO.

Melrose Park, Ill. (Chicago Suburb) • Cable: HEVALCO Chicago.

* Registered U. S. Pat. Off.

HENRY VALVE CO. CONTROLLING FLOW

Valves, Driers, Strainers, Control Devices and Accessories for Refrigeration and Air Conditioning and Industrial Applications.

BRUNNER SINCE 1906 REFRIGERATION helps you serve better

...a size and type for every purpose

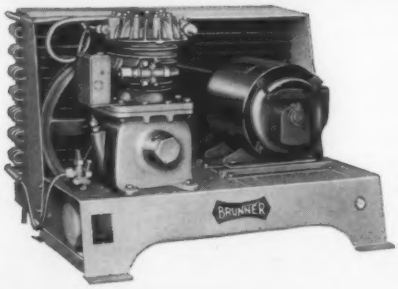
STANDARDIZE on Brunner Condensing Units. Strengthen your sales and service advantages by having available *customer accepted* units in sizes and types fitted to every refrigeration job.

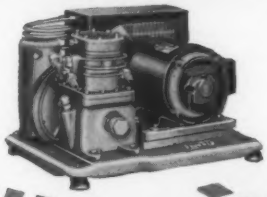
Equipment manufacturers, air conditioning engineers and contractors, general refrigeration engineers and service companies can profit more when backed by a source of supply with ample, self-controlled production facilities.

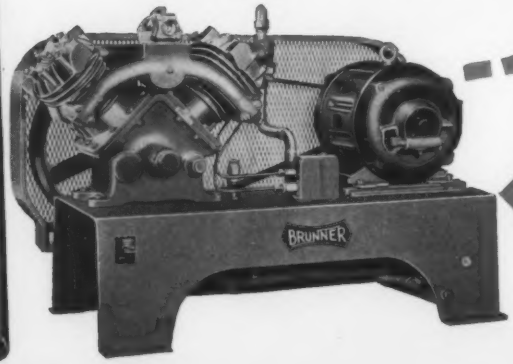
Brunner Condensing Units are continuously advertised to the "user" trades and industries. They are known by their service records...preferred for their operating efficiency, economy and long life.

BRUNNER MANUFACTURING CO.
Utica 1, New York, U. S. A.

● 22 Brunner branch office representatives who really know refrigeration are available whenever you say the word. We sincerely believe a meeting with one of these men would prove useful and well worth your time.







REFRIGERATION CONDENSING UNITS
...a size and type for every purpose

BRUNNER SINCE 1906

AIR AND WATER COOLED MODELS
¼ HP. TO 30 HP.

you'll find Wagner Motors on the job . . . on Main Street, U.S.A.

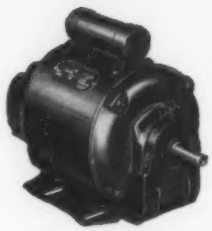
The Wagner fractional horsepower Motor...

These small-sized Wagner Quality Motors can be found throughout the length and breadth of America, doing a thousand different jobs in the shops, schools, homes, farms and factories that comprise Main Street, U. S. A. They power compressors, stokers, frozen food cabinets, pumps, and many other motor-driven devices.

The steadfast dependability of Wagner Fractional Horsepower Motors has made them the first choice of many manufacturers of small machines and appliances. Take a tip from these manufacturers—if you need motors that will give trouble-free performance and build customer satisfaction — choose Wagner Motors. The complete line of Wagner Motors covers a wide range of types and sizes for every application.

BUYERS OF WAGNER MOTORS GET NATIONWIDE SERVICE! More than 450 Wagner Authorized Electrical Service Stations and Parts Distributors augmented by 25 Wagner-owned Service Branches are ready to immediately supply on-the-spot service, factory guaranteed exchange motors, or genuine Wagner parts. Write for Bulletin MU-24 for complete list.

Bulletins on the complete line of Wagner Motors are also available.



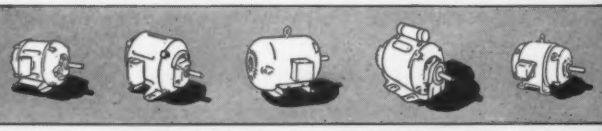
Capacitor-Start Motor

Repulsion-Start Induction Motor

Wagner Electric Corporation
6442 PLYMOUTH AVE., ST. LOUIS 14, MO., U. S. A.

Wagner Electric Corporation EST. 1891

Consult Wagner Engineers on all Electric Motor Problems



• ELECTRIC MOTORS • TRANSFORMERS • INDUSTRIAL BRAKES • AUTOMOTIVE BRAKE PRODUCTS •

M49-3

A *Complete Line* FOR EVERY AIR CONDITIONING NEED

TYPHOON

Year-in, year-out economy and efficiency give Typhoon distributors an unbeatable talking point. Ruggedly engineered for trouble-free performance, oversize components insure full-rated capacity at all times. A complete line of air conditioning equipment that adds up to complete customer satisfaction.

Every Typhoon distributor has the shoulder-to-shoulder cooperation of an organization with 40 years of air conditioning experience.

Easy to sell, easy to install, easy to service.

EVAPORATIVE CONDENSERS

Modern Typhoon-designed 3-5-7 & 10-ton sizes.

A line that has set a new standard for packaged air conditioners.

COMPRESSORS

Compact ½-ton to 50-ton units to deliver maximum refrigeration at minimum cost.

LOW SIDE UNIT

Made for use remote from the compressor unit. Comes complete with filters and multi-outlet expansion valve.

Tie Up with TYPHOON

Nationally advertised in top publications . . . backed by a sales-winning program of dealer promotion and sales-training.

TYPHOON'S *40th Anniversary* 1909-1949

TYPHOON AIR CONDITIONING CO., INC.

794 UNION STREET · DEPT. B-12 BROOKLYN 15, N. Y.

For a neater job, a

Better Profit!

NIBCO

Fittings Wrot from Tubes

The Nibco line includes Tees, Elbows, Couplings, Return Bends, Adapters, Unions — everything you need to go with the tube.

Send for Catalog F! A new manual of technical and selling information to aid in specifying and ordering Nibco fittings and valves.

Formed without seam or weld, from the same tubes with which they are used, Nibco Wrot Fittings have a smooth interior finish which insures a perfect joint. Light in weight because no excess metal is needed for cutting threads. Precision-made to fit, they speed the job and make a quality installation with economical light weight copper tubes. It will pay you to standardize on the complete line of Nibco Wrot fittings.

NORTHERN INDIANA BRASS CO.
214 Plum Street, Elkhart, Indiana
Without obligation please send me a copy of your new catalog F.

Name_____

Address_____

City_____

State_____

NORTHERN INDIANA BRASS CO.
214 PLUM STREET, ELKHART, INDIANA

QUALITY VALVES AND FITTINGS SINCE 1904

FOR STORE SALES... OR HOME SERVICE CALLS

DAYTON V-BELTS

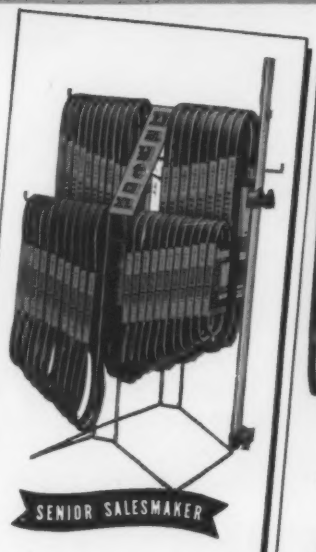
WILL BUILD YOUR SERVICE REPUTATION... UP YOUR PROFITS

COMPLETE ONE-PACKAGE SALESMAKERS

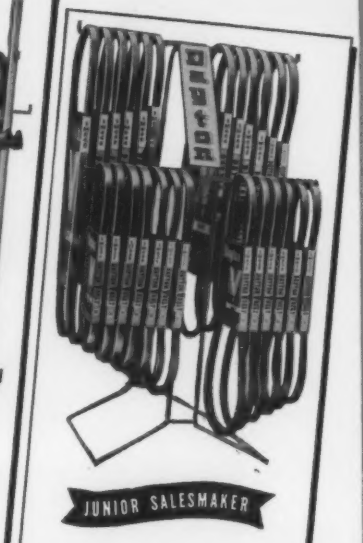
Whether your customer buys a replacement V-Belt in your store, or you make the replacement on a home service call, you'll give your customer top-quality, reputation-building merchandise by selling a Dayton V-Belt.

Dayton offers you a choice of three complete, compact Salesmaker units, one of which will fit the V-Belt demands of your particular store and service. Each features Dayton V-Belts, the only V-Belt built with Raytex Fortified Cord for *minimum stretch, greater flex strength* and *longer life.*

With a Dayton Salesmaker, you get complete selling tools ... to help you build your service reputation ... make more V-Belt sales ... increase your V-Belt profits! Write today to *Dayton Rubber, Dayton, Ohio.*



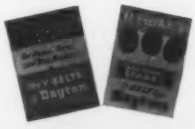
39 fastest-selling V-Belts to service refrigerators, washers, pumps, compressors, all types f.h.p. motors.



25 of the fastest selling V-Belts that let you service practically all home equipment and machinery.

DAYTON MATCHOMETER for determining correct replacement V-Belt.

INSTRUCTION FOLDER... DISPLAY HINTS... to help increase V-Belt sales.



WALL, WINDOW POSTERS ... to let customers know you sell V-Belts.

CATALOG No. 44... Complete listings, with correct V-Belt replacements.

PRICE CARD... gives belt numbers, size and suggested resale prices.

Dayton Rubber

THE MARK OF TECHNICAL EXCELLENCE IN NATURAL AND SYNTHETIC RUBBER

for

FRESH MEAT

WITH THERMOBANK

by KRAMER

Only THERMOBANK keeps
Coils Frost-Free *Automatically*
at any Temperature
without
- LABOR
- ATTENTION
- ELECTRIC HEATERS
- BRINE OR WATER SPRAYS

WRITE FOR BULLETIN R147

KRAMER TRENTON CO. *Trenton 5 N. J.*

Here are two more outstanding examples of KOCH quality and leadership . . . Models 306 and 3508! The KOCH reputation has grown steadily since 1883. Get the facts and you'll agree—the KOCH line is the quality line—the line of least resistance!

MODEL 306
Three-Shelf Display Case

Yes—three *sales-making* shelves—each with its own refrigeration system (natural convection type)—each with its own individual full-length fluorescent lighting. Ends removable for endless display. Full-length plate glass mirror mounted at rear of upper shelf. Exterior front and ends porcelain. Display compartment high-baked white Dulux on coated steel. Steel in and out. Display shelves of steel, finished in high-baked white Dulux. Three-inch thick fibre glass used throughout!

More good reasons why Koch is "THE LINE OF LEAST RESISTANCE"

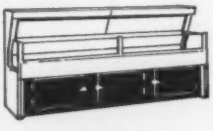
MODEL 3508
Dairy Case, Ideal for All Types of Stores

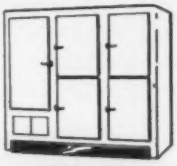
This 8-ft. long Dairy Case, finished in spotless white porcelain on the front, has huge capacity in proportion to the floor space. It is easy to work through the wide doors. And it is easy for customers to help themselves. Shelves are arranged invitingly, with price card molding along front. K-Beam lighting calls customers' attention to the appetizing and tempting dairy products on display. Lower compartment is also refrigerated.

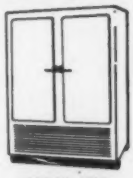
KOCH produces equipment for almost every type of Commercial use!

MODEL 110

MODEL 1106


MODEL 5710


MODEL 3865


MODEL 4725

Send Today for Details and Open Territories

KOCH *Refrigerators*

KOCH Refrigerators, Dept. RI
North Kansas City 16, Mo.

Gentlemen: Please send full information on the KOCH line of refrigeration equipment.

Name_____ Title_____

Address_____

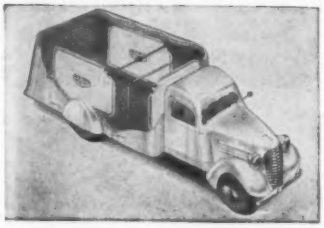
Firm Name_____

City_____ Zone_____ State_____

KOLD-HOLD TRUCK PLATES

KEEP THE SELLING FLAVOR RIGHT!

Flavor . . . rich, delicious and protected . . . is what makes customers come back for more. Whether it's meat, milk, ice cream or frozen foods overheating of perishables robs flavor and vitamins and often causes actual product loss.



Here is where Kold-Hold "Hold-Over" truck plates fit into the picture. These plates hold the truck at the desired temperature — and do it even on delivery service where the truck doors are frequently opened. What's more, the overall cost of operating with "Hold-Over" plates is lower than with dry or sweet ice — ordinarily less than 10c a day.

Kold-Hold "Hold-Over" plates provide numerous other advantages. Greater payload, because the plates take up less room. Greater safety, because the streamline design eliminates square corners — the point most liable to burst when the plates are frozen. Truck bodies that are always dry, sweet and clean. Handling costs are lowered, because partially loaded trucks need not be unloaded at night. When hooked into the central compressor, which recharges the entire fleet, they act as holding rooms. For trucks that make two day runs, a small compressor may be mounted directly on the truck and plugged in at night to any 110V outlet. Write for complete information on Kold-Hold "Hold-Over" plates for your trucks.

New Pakage Truck Unit Answers Some Hi-temperature Problems... Write for Data.

KOLD-HOLD

Jobbers in Principal Cities

PROCESSING TRANSPORTATION STORAGE

protects every step of the way

KOLD-HOLD MANUFACTURING COMPANY - 503 E. HAZEL ST., LANSING 4, MICHIGA

Slash VALVE INVENTORY COSTS UP TO *90%*

GENERAL CONTROLS engineering offers tremendous savings in inventory investment, stock space and handling costs.

For complete information on how to reduce your inventory costs with General Controls refrigeration valves request literature and see your refrigeration wholesaler.

The new selective capacity cartridge provides instant sizing adjustment.

The unsurpassed control for refrigerants. V-200 Thermal Expansion Valves available in ½, 1, 2, and 5 ton body sizes and for Freon, Methyl Chloride, Sulphur Dioxide.

COMPARE THESE FACTS...

ORDINARY VALVES	GENERAL CONTROLS V-200 VALVES
Separate valves for each back pressure or suction temperature range.	One valve for ALL back pressure or suction temperature ranges.
Separate valves for each capacity size.	One valve with selective cartridge for full range of capacities.

54-1

For Full Capacity Range in each body size at all back pressures with any one refrigerant

ONLY *One* VALVE REQUIRED FOR COMPLETE INVENTORY

NATIONALLY DISTRIBUTED BY REFRIGERATION WHOLESALERS

Cut Costs... Increase Profits with

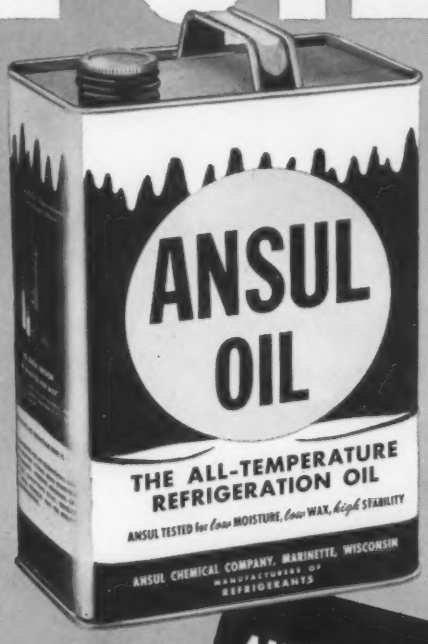
GENERAL CONTROLS

Manufacturers of Automatic Pressure, Temperature & Flow Controls

FACTORY BRANCHES: Birmingham (3), Boston (16), Chicago (5), Cleveland (15), Dallas (2), Denver (10), Detroit (8), Glendale (1), Houston (2), Kansas City (2), New York (17), Philadelphia (40), Pittsburgh (22), San Francisco (7), Seattle (1), Oklahoma City (1) • **Distributors in Principal Cities**

ANSUL OIL

THE ALL-TEMPERATURE REFRIGERATION OIL



Recommended for air conditioning and refrigeration systems using standard refrigerants.

ANSUL OIL is an ALL-Temperature Refrigeration Oil which conforms to the rigid wax-free specifications established by Research. It will not separate wax when mixed with a refrigerant (under specified conditions) and subjected to temperatures as low as SEVENTY DEGREES BELOW ZERO (Fahrenheit).

ANSUL OIL has been machine tested for lubrication and wax-free characteristics in both high and low temperature installations. It is absolutely uniform . . . maintains high stability and has a low oxidation rate. It has proved suitable for ALL refrigerating systems using any of the standard refrigerants.

Ansul Research was first to recognize the problems resulting from low-temperature wax separation in oil-refrigerant mixtures. It realized the critical need for an oil which would not only lubricate and protect moving parts but would also eliminate the persistent troubles which were traced to wax-separation from oil-refrigerant mixtures.

LIQUID Sulfur Dioxide to ANSUL* LIQUID Methyl Chloride to ANSUL*

*REG. U. S. PAT. OFF.

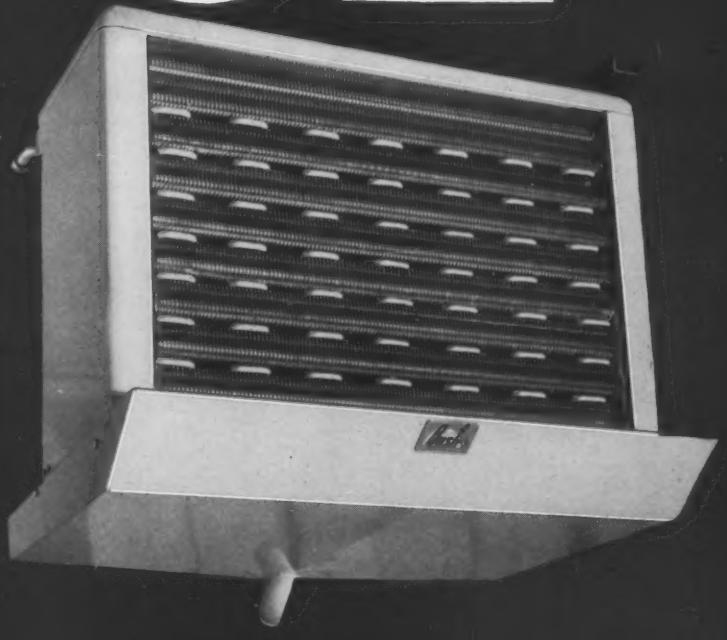
ANSUL TESTED FOR
- LOW MOISTURE
- LOW WAX
- HIGH STABILITY

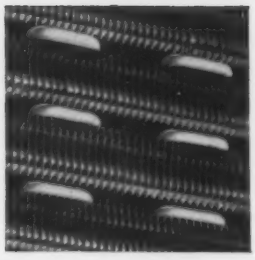
ANSUL OIL — the all-Temperature Refrigeration Oil — is sold by leading refrigeration wholesalers everywhere. Get it where you buy your ANSUL sulfur dioxide and ANSUL methyl chloride.

ANSUL CHEMICAL COMPANY
REFRIGERATION DIVISION, MARINETTE, WISCONSIN
ANSUL SULFUR DIOXIDE, ANSUL METHYL CHLORIDE, ANSUL OIL, KINETIC'S "FREONS"

BELOW 32°

The New BUSH ELECTRIC DEFROST





Enlarged coil section showing tinned copper tube enclosing special heating cable which defrosts coil rapidly by spreading large heat input of low intensity evenly over entire coil area. Low intensity and even distribution of heat result in its almost total absorption in melted frost, which is drained immediately from heated pan without producing rise in box temperature.

The new BUSH DF (Electric Defrost) Line is designed for use in low temperature applications in localities where water supply is limited or where water temperature is too low for efficient defrosting. At 10° TD capacities range from 4,500 to 18,000 BTU/HR. Normal frost load is removed in 20 to 30 minutes of heat application without enclosing louvers. BUSH Products are *AVAILABLE NOW* through leading refrigeration and air conditioning wholesalers everywhere.

Ask your wholesaler for your copy of the Bush Engineering Data Book . . . or write us direct.

Bush
HEAT TRANSFER PRODUCTS

BUSH MANUFACTURING CO. • WEST HARTFORD 10, CONN.

LETTERS

California Readers Seek Information on Contracts

THE REFRIGERATION INDUSTRY:

We have had several of our customers inquire from time to time for copies of a service contract which they might use in developing a business of this kind in their particular area. We are wondering if you might not have run an article covering this particular operation at some time in your magazine, or if you might perhaps have available suggested contracts of this type which we could furnish to those so inquiring.

Any information you may be able to give us covering service contracts, would be sincerely appreciated.—G. S. Robinson, California Refrigerator Co., San Francisco 3, Calif.

THE REFRIGERATION INDUSTRY:

Please send me any information you may have on monthly service contracts agreements and their applications.—C. D. Klassen, Mac's Refrigeration Service, Artesia, Calif.

An article which appeared in our July 1947 issue describes a set of preprinted inspection and maintenance agreements which can be used by anyone in setting up an operation of this sort. These forms are available, we understand, from Reynolds & Reynolds Co., 800 Germantown St., Dayton 7, Ohio.

These are the most complete forms that we have seen so far and we believe you can recommend them to any of your customers who are interested. If this is not what you had in mind, let us know and we will try to dig up something else for you.—Editor

Heat Pump Continues To Stir Interest

THE REFRIGERATION INDUSTRY:

Would like to get information on reverse cycle refrigeration equipment (heat pumps) manufactured by the Worthington Pump & Machinery Corp. Sizes, types, prices, installation methods, etc. Had two inquiries lately, one for a home, the other for a tavern. Would be very grateful for any information.—Eugene B. Pomerlean, Modern Refrigeration Co., Waterville, Me.

Although we do not have in our files any information on heat pump equipment manufactured by Worthington Pump and Machinery Corp., if you will write to M. M. Lawler of that company at Harrison Ave., Har-

Fit the VALVE to the Job

1. Capacity depends upon several factors, but largely upon the pressure change developed in the power element by the change in feeler bulb temperature.

2. To flood properly, superheat at the coil outlet should be kept relatively low on all types of installations.

3. Therefore, to insure proper coil outlet superheat, a constant opening superheat is adopted regardless of evaporator temperature. A 3° F. temperature change gives less pressure change and correspondingly less valve opening at lower evaporation temperatures.

4. A constant temperature change, such as 3° F., at the feeler bulb will result in a 3 p.s.i. pressure change at +40° F. evaporation temperature but considerably less than 3 p.s.i. at lower evaporation temperature, such as 1.1 p.s.i. at −20° F. evaporation temperature.

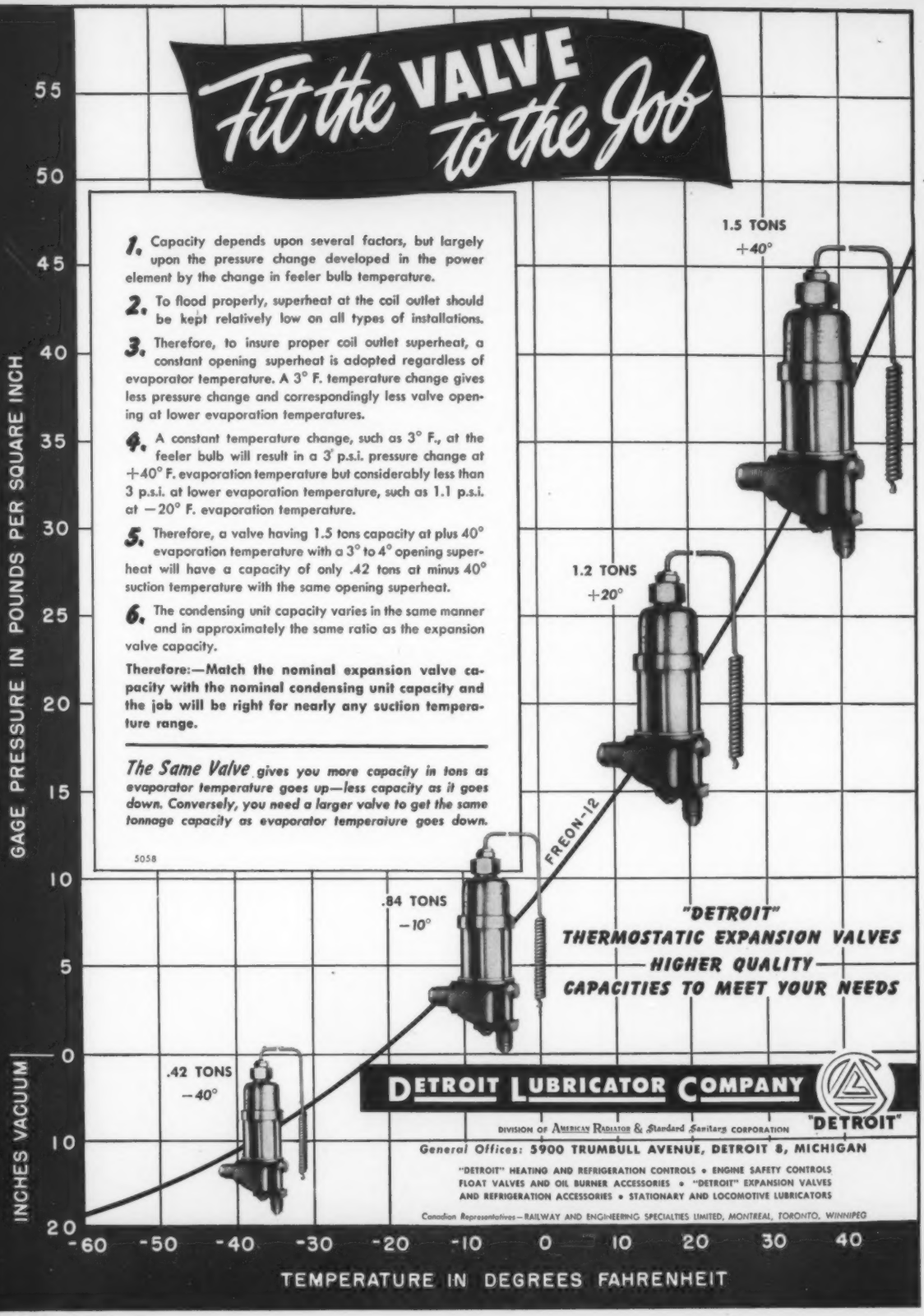
5. Therefore, a valve having 1.5 tons capacity at plus 40° evaporation temperature with a 3° to 4° opening superheat will have a capacity of only .42 tons at minus 40° suction temperature with the same opening superheat.

6. The condensing unit capacity varies in the same manner and in approximately the same ratio as the expansion valve capacity.

Therefore:—Match the nominal expansion valve capacity with the nominal condensing unit capacity and the job will be right for nearly any suction temperature range.

***The Same Valve** gives you more capacity in tons as evaporator temperature goes up—less capacity as it goes down. Conversely, you need a larger valve to get the same tonnage capacity as evaporator temperature goes down.*

5058



"DETROIT"
THERMOSTATIC EXPANSION VALVES
—HIGHER QUALITY—
CAPACITIES TO MEET YOUR NEEDS

DETROIT LUBRICATOR COMPANY "DETROIT"

DIVISION OF AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

General Offices: 5900 TRUMBULL AVENUE, DETROIT 8, MICHIGAN

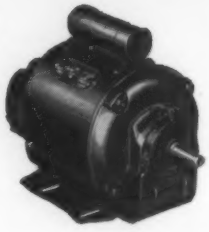
"DETROIT" HEATING AND REFRIGERATION CONTROLS • ENGINE SAFETY CONTROLS
FLOAT VALVES AND OIL BURNER ACCESSORIES • "DETROIT" EXPANSION VALVES
AND REFRIGERATION ACCESSORIES • STATIONARY AND LOCOMOTIVE LUBRICATORS

Canadian Representatives—RAILWAY AND ENGINEERING SPECIALTIES LIMITED, MONTREAL, TORONTO, WINNIPEG

Genuine Joe says—

Motors too Costly to repair can be economically replaced with WAGNER *Service Exchange* Motors

Capacitor-Start Motors 1/6 to 1/3 horsepower inclusive.



Repulsion-Start Induction Motors 1/6 to 5 horsepower inclusive.

Many motors that come to your shop are "too far gone" to repair economically—or perhaps your customer needs *right-now* service. Replace them with Wagner Service Exchange Motors. These motors are fully guaranteed against defective material or workmanship for one year.

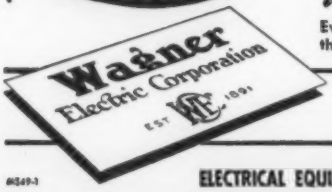
Be profit-wise—keep a stock of Wagner Service Exchange Motors on hand, to take care of emergencies, and build lasting customer satisfaction.

LOOK FOR THESE SIGNS AT YOUR SUPPLIERS...

They identify the 450 Authorized Service Stations and Parts Distributors who handle *genuine* Wagner Service Exchange Motors and repair parts.

***Write for* CATALOG MU-40**

Every repair shop needs one. It helps determine the catalog number and price of Wagner Motor Parts.



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68249-1

ELECTRICAL EQUIPMENT AND AUTOMOTIVE BRAKE PRODUCTS

LETTERS

rison, N. J., his department should be able to provide you with whatever information is available on this equipment.

For your information, other manufacturers of heat pump systems are Drayer-Hanson, Inc., 3301 Medford St., Los Angeles 33, Calif., General Engineering & Mfg. Corp., 4417 Oleatha Ave., St. Louis 16, Mo., Muncie Gear Works, Muncie, Ind., Webber Engineering Corp., Board of Trade Bldg., Indianapolis, Ind.—Editor

Who Makes Walk-Ins?

THE REFRIGERATION INDUSTRY:

Please send me a list of manufacturers of walk-in coolers.—Marvin Arnold, Johnson Furniture & Appliance Co., Ashland, Wis.

A list of 20 manufacturers of this type of equipment was sent to Mr. Arnold. A far more complete listing of manufacturers of walk-ins and all other types of commercial refrigeration and air conditioning products will be included in the Products Section of our COMMERCIAL REFRIGERATION & AIR CONDITIONING MARKETING HANDBOOK, *which is now in the final stages of preparation and which will be available soon.—Editor.*

Vilter, Too, Manufactures Ice Rink Equipment

THE REFRIGERATION INDUSTRY:

I very much enjoy reading your publication, but note in your December issue that in answering the inquiry of one of your readers seeking skating rink information our name does not appear as a manufacturer of ice rink refrigeration equipment. Inasmuch as the Vilter Mfg. Co., has many representative artificial ice rinks in satisfactory operation across the country, we would so like to inform you.

It is of interest that this same issue of your magazine describes a recent curling rink installation. In this connection I am pleased to enclose a copy of our brochure "Calendar Curling on an Artificial Ice Rink", wherein we present the advantages of artificial ice for this exhilarating sport which is constantly increasing in popularity. By Calendar Curling we mean the ability to definitely plan and schedule matches or bonspiels without danger of cancellation due to adverse weather conditions—A. O. Vogel, general sales manager, Vilter Mfg. Co., Milwaukee 7, Wis.

No "free ride" for oil with Carrier Compressors

No JOB is better than the equipment used in it. That's why you'll find it good business to install Carrier Compressors. Unlike the average unit, they won't let your customers down after a few months. They deliver efficient, low-cost refrigeration year after year.

Yes, where the average refrigeration system begins to bog down after a few months because oil gets into the coil to rob the refrigerant of its effectiveness, Carrier Compressors keep the oil in the crankcase where it belongs. It can't take a "free ride." Carrier Compressors accomplish this by a series of engineered steps, among them:

1 — An unusually large suction manifold. As oil, which is entrained in the refrigerant in small particles, enters the manifold its velocity is greatly reduced and oil particles separate from the mixture.

2 — A 90° turn in the gas flow. As the mixture takes this turn, additional oil particles are impinged on the side of the manifold. This oil — plus that separated previously — is returned to the crankcase via a drilled passage.

3 — An oil return check valve between the suction manifold and the crankcase. This valve assures the return of oil to the crankcase, and prevents its traveling from the crankcase back to the manifold.

For best results, install Carrier balanced refrigeration. That's a Carrier Compressor and a Carrier Cold Diffuser. These units are designed and built to work as a team and provide years of long, hard usage.

By relying on Carrier, you gain other important advantages. All the vast resources of Carrier, a leader in the field, are available to you. And, whenever you need expert technical advice on a tough problem, a Carrier-trained engineer will be glad to help you. Write today for Catalog OP16 on Carrier Compressors or CR241 on Carrier Cold Diffusers. Carrier Corporation, Syracuse, New York.

Carrier AIR CONDITIONING • REFRIGERATION • INDUSTRIAL HEATING

Choice of the Field!

Upper illustration: Standard Dome Cooler with air emitting in all directions.

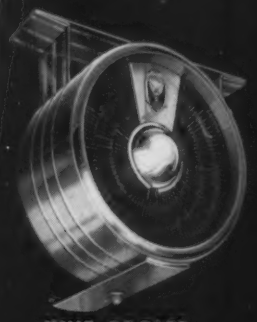
Lower illustration: Two-way Dome Cooler with air flow limited to two directions.

PEERLESS DOME COOLER

● For top performance in reach-in and walk-in coolers, install the PEERLESS DOME COOLER, the motor-driven cooling coil with a long history of satisfactory service. In the new, improved 1949 model you have the finest performance yet in this type of cooling coil. It's easily installed and occupies minimum space. The handsome spun aluminum casing holds precision-engineered parts which insure dependable, trouble-free operation. Air is drawn up in the center of the unit, cooled, and discharged horizontally along the fixture ceiling to drop down the side walls. This efficient, constant cooling cycle maintains high humidity, keeping stored products at the peak of their quality. Use PEERLESS motor-driven cooling coils. You'll find that today's outstanding cooling coils are PEERLESS-MADE!

CASCADE COOLER

CASCADE COOLER This motor-driven coil combines radiant and convection cooling. Even the ornamental casing is a cooling surface! Cold air cascades downwardly from the face of the unit, which hugs the wall, saving storage space.



UNIT COOLER

UNIT COOLER This is the new PEERLESS "PIE PLATE" with all primary and secondary surfaces IN THE AIR STREAM. There is no waste surface in this condensed package of refrigeration power.

FOR BOX TEMPERATURES ABOVE 32°
FOR USE WITH FREON, METHYL CHLORIDE AND SULPHUR AS REFRIGERANT
SEND FOR ENGINEERING DATA AND PRICE LISTS

PEERLESS of AMERICA, Inc.

2901 LAWRENCE AVE. CHICAGO 25, ILLINOIS, U. S. A.

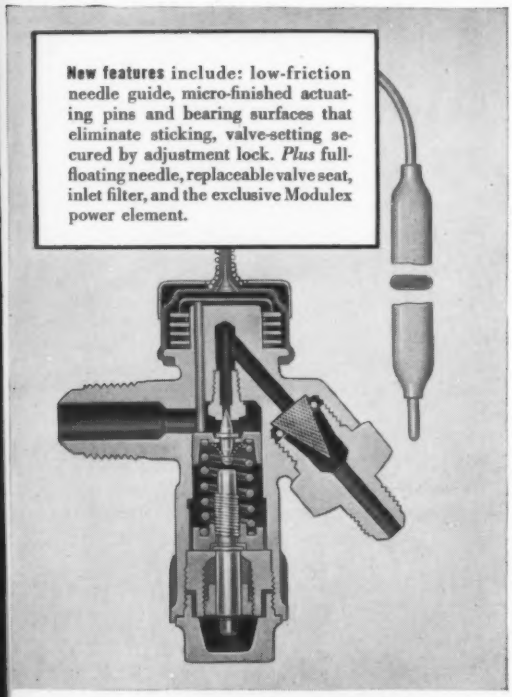
Why not Profit from Experiences of others...

"We've saved many dollars in job time on rebuilding and repairing by using precision-built Frigidaire parts. They're far superior in every way." says Forrest C. Hershey, of Holbrook Refrigeration, Inc., 1514 W. 7th Street, Los Angeles, Calif.

"It's easier on servicemen when they have Frigidaire precision parts to work with, and, at the same time, the job gives greater customer satisfaction," says J. Earl Jennings, of C. D. Jennings Co., 4435 Toulouse Street, New Orleans, La.

"We've enjoyed big business from some of the largest chain stores in our area for many years, largely because we use dependable Frigidaire parts," says G. L. Reed, of Reed's Refrigeration Service, 4 North Central Avenue, Baltimore, Md.

Frigidaire Service Parts mean Good Business For You!


New features include: low-friction needle guide, micro-finished actuating pins and bearing surfaces that eliminate sticking, valve-setting secured by adjustment lock. *Plus* full-floating needle, replaceable valve seat, inlet filter, and the exclusive Modulex power element.

Frigidaire's *New* Modulex Expansion Valves offer dependable operation, accurate control — are easy to install, warranted for one year.

Like other genuine Frigidaire precision-built parts, Modulex thermostatic expansion valves are the choice of thousands of experienced servicemen. These men will tell you that the newly improved Modulex valves operate with complete dependability, eliminating many costly call-backs. What's more they save time and trouble on the job—can be installed in any position, inside or outside the fixture—and you'll appreciate their compact size when you're working in "close quarters."

Most of all, you'll like the precision control possible with Frigidaire's exclusive Modulex thermostatic bulb. This unique power element, proved in 10 years of successful use, responds only to temperature changes at the bulb itself. Changes at valve body, or along the capillary tube, do not affect valve operation. In fact, tests prove the Frigidaire Modulex valve continues to function perfectly even when completely frozen in a ball of ice, or subjected to unusual heat conditions. Highest efficiency is obtained through full use of cooling unit surface.

FREE! Frigidaire Parts Catalog. For full information about all Frigidaire service parts, write for your free Frigidaire "Parts" Catalog today: Frigidaire Division, General Motors Corporation, 1335 Amelia Street, Dayton 1, Ohio.

FRIGIDAIRE DIVISION
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Please rush my free copy of your parts catalog—
"Genuine Precision-Built Frigidaire Parts and Accessories."

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FRIGIDAIRE

Parts and Accessories

when it's so easy to say "ANACONDA"

ANACONDA COPPER REFRIGERATION TUBES have qualities that assure a dependable, ready-and-easy-to-use refrigeration tube . . . qualities that add extra measures of economy and reliability because:

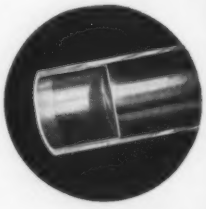
. . . they are dehydrated to eliminate troublesome moisture.

. . . they come to you with unusually clean and bright inside surfaces.

. . . the exclusive Anaconda Cup Seal reduces waste and protects the inside of the tube from the point of manufacture to the point of installation.

. . . they are uniformly soft, easy to bend and may be readily flared without cracking.

Anaconda Refrigeration Tubes are 99.9% pure specially deoxidized copper, made to A.S.T.M. Specification B68. They are available in all standard sizes up to and including ¾" O.D. in 50-foot coils. Other lengths on special order. 47414 Rev.



OTHER PRODUCTS: Precision-made tubes in Copper, Brass, Bronze, Copper-Nickel Alloys and Aluminum; in sizes from .015" O.D. to 1" O.D. with wall thickness down to .004"; round, square, or irregularly shaped; in coils, straight lengths or special forms. Bourdon tubes, thermal expansion bulbs.

THE AMERICAN BRASS COMPANY—FRENCH SMALL TUBE BRANCH

General Offices: Waterbury 88, Conn. • *Subsidiary of Anaconda Copper Mining Company*

In Canada: ANACONDA AMERICAN BRASS LTD., *New Toronto, Ont.*

ANACONDA
from mine to consumer

Anaconda Refrigeration Tubes

Curtis

- is now appointing Direct Factory Dealers in territories that are open.
- CURTIS' policy has always been to sell direct to responsible experienced dealers, *not* through intermediaries.
- If you need a complete line of Nationally Known and Advertised Packaged Air Conditioning, Condensing Units and Air Handling Equipment of your own to insure you profits in the coming competitive market, wire or write today.
- Some good territories open.

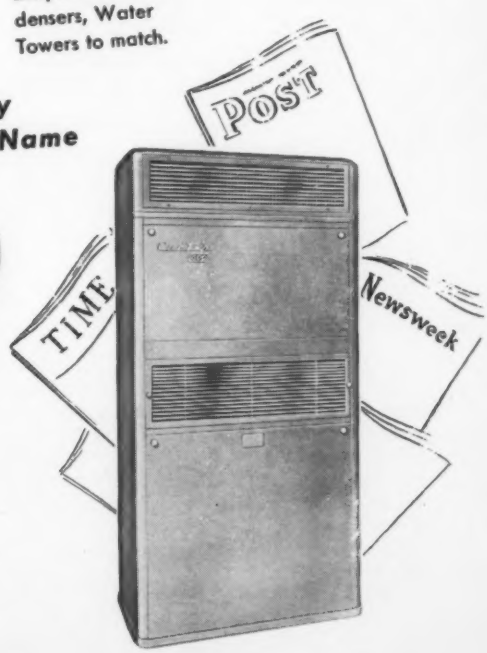
✓ Packaged Air Conditioning Units 3 thru 15 HP.

✓ Air and Water Cooled Condensing Units ¼ thru 30 HP.

✓ Air Handling Units, Evaporative Condensers, Water Towers to match.

All under one Nationally Known and Advertised Name

Curtis REFRIGERATION AIR CONDITIONING COMMERCIAL



with 95 years of Continuous Successful Manufacturing and highest possible credit rating.

CURTIS REFRIGERATION DIV.

of Curtis Manufacturing Co.

1915 Kienlen Ave. St. Louis 20, Mo.

R49-3

PENN *Plus Values* mean PROFIT for you

Penn Cooling Thermostat assures close and accurate temperature regulation.

Penn Series 221 Solenoid Valves, dependable in a wide variety of applications.

Penn Series 246 Water Valves, both threaded and flanged styles, sizes from 3/8" to 2-1/2".

Penn 270 Series Controls with 2-pole construction and direct-reading calibrated scale showing both cut-in and cut-out points.

Penn Magnet Starter provides both automatic and manual reset.

Sell the plus values of PENN refrigeration controls . . . the greater accuracy, longer life and more dependable operation... plus values which mean fewer service calls, more customer satisfaction and extra profits for you!

Leader of the Penn complete line of refrigeration controls is the versatile "270" Series. This is the first and only load-carrying 2-pole switch in the air conditioning and refrigeration field. Available in "single" and "dual" types, the "270" also features a direct-reading calibrated scale. Advantage? Easier adjustment of cut-in and cut-out setting. Then there is the *new* Penn magnetic starter that permits either automatic or manual reset through a simple change of spring position. Automatic reset is especially desirable in commercial refrigeration, to prevent spoilage in case of temporary overload.

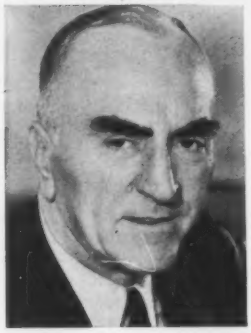
Ask your wholesaler for information on Penn's complete line of refrigeration controls, or write to **Penn Electric Switch Co., Goshen, Ind.** Export Division, 13 E. 40th Street, New York 16, U. S. A. In Canada: Penn Controls Ltd., Toronto, Ontario.

PENN

AUTOMATIC CONTROLS

FOR HEATING, REFRIGERATION, AIR CONDITIONING, PUMPS, AIR COMPRESSORS, ENGINES, GAS RANGES

GOODS FOR GOODS



CAPITALISM is a steadily shrinking island of Free Enterprise surrounded by turbulent and destructive seas of Monopoly controlled by economic and political dictators.

These monopolies, in which neither producer nor consumer, employer nor employee, determine the scale, standard, or cost of living, range all the way from the so-called Socialist system, now in control of England, to enslaving Communism, as practiced in Russia and other Iron Curtain countries.

The whole purpose of business, industry, finance and agriculture is to produce at costs that provide the greatest volume of goods for the greatest number of people. Men can fill libraries with books on economics, monetary systems, political sciences and social reforms. I will not say that this is a waste of time, but I do claim that all the codes which govern and concern the comfort of man can be compressed into these three words: *GOODS FOR GOODS!*

The sooner the world re-establishes this simple fact, the sooner we will return to an even keel of political, mental and economic security.

There is no wealth of any kind outside of products in services and goods. The only riches which enable us to eat and drink, or clothe, shelter, and educate ourselves and our families are the riches that are made through the skills of man in industry or grown through the skills of man on farms.

No government can wave a magic wand and provide things for people who do not produce. No social code, no political vote-bait, no creed can meet the needs of those who do not produce. "GOODS FOR GOODS" is the controlling law. It cannot be amended nor repealed.

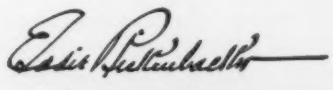
Production, not money, is the master of the world. And I, for one, have never been able to understand why a system such as America's unbeatable policy of productive and shared Free Enterprise needs so much explanation, so much underscoring, so much selling. Free Enterprise should sell itself every day in the world-wide news you read in newspapers, hear on the radio, or see on the news-screen.

Capitalism has become a highly misinterpreted word. Capitalism, in the true productive sense, is not a banker under a top-hat, a "boss" in a limousine, or a stockholder on a yacht. Capitalism is a structure of production, and I invite anyone to show where the state-ownership of Socialism or mass-enslavement of Communism have provided so much for so many in any land on earth as has Capitalism in America.

We in America are free to work where we want to work; free to live where we want to live. Try to do that in Russia, and *you land in jail.*

It would be wonderful if we were taught in school that Time is really money —that hours are dollars, and that minutes are cents.

If that were the case, I firmly believe we would be less wasteful with our most productive possession—TIME! Time to produce—Time to rest and play—Time to improve ourselves—and Time to establish on earth the Realm of Brotherhood that God created.



President and General Manager
Eastern Air Lines, Inc.

BTU's

News • Laws • Trends

Canadian Firm Plans to Make Portable Unit

PLANS for the production of a Canadian-made lightweight electric refrigerator fabricated of aluminum took their first concrete step forward when Taymouth Industries, Toronto, Ontario, subsidiary of Astral Equipment, Glasgow, bought a 9-acre site on Queen Elizabeth Way in Etobicoke Township on which it intends to erect a plant for the manufacture of these lightweight units.

Weighing only 50 pounds, this portable electric refrigerator has a capacity of 1½ cu. ft. and is designed for special application in apartments, summer homes, offices, and other places where portability is an advantage.

Based on a Swiss patent under which the unit has been in production for the British market, the cooling unit operates on the absorption principle, and has no motor or other moving parts. It has been redesigned for the Canadian market.

High Altitude Freezing

WHEN the United States Patent Office issued Patent No. 244-7665 to William B. Haggerty, president of Tampa (Fla.) Cold Storage Warehouses, Inc., it gave the green light to an interesting new development in the field of food freezing.

In brief, Haggerty's patent covers a process of preserving fresh food in transit by flying it from point of production to point of distribution in planes equipped with vents on the wings which are designed to provide a constant flow of cold air over the cargo, either freezing it or merely cooling it, depending upon the altitude at which the plane flies.

No difficulty was encountered in patenting the vents, which are equipped with thermostatic valves, but the patent on the process itself was granted only after repeated appeals and denials.

Haggerty tested his process thoroughly before patenting it by checking the reaction of various types of produce to pressure chamber conditions simulating altitudes up to as high as 50,000 feet. No product deterioration was revealed as a result of the pressure changes.

To achieve most efficient operation under the Haggerty system, special deep-bellied cargo planes will have to be constructed, and the Glenn L. Martin Co. already has done some initial engineering work on such a ship. In the interim, however, the process may be modified somewhat to make it adaptable to existing cargo planes.

Haggerty himself makes clear the point that the new plane won't be a "flying refrigerator" as it has sometimes been called, but rather a cargo plane flying through a "refrigerator" consisting of the chilled air of the higher altitudes.

Restaurant Refrigeration A "Must"

UNDER a recently enacted regulation, all restaurants in the city of Winnipeg, Canada, must keep all perishable food in a refrigerator maintained at a temperature at or below 45 F. The regulation does not apply to places selling no food other than bottled drinks or ice cream cones or similar ice cream products, the presumption being that such places would use beverage coolers and ice cream cabinets for storage of these products.

Designed to raise the levels of food sanitation and service, the regulation provides that thermometers must be kept in all refrigerators where health department inspectors can check them periodically. Also, refrigerators and storage rooms must be cleaned at least once a week.

Trade-Ins Raise Their Ugly Heads

FIRST signs of a buyers' market in the household refrigerator field are beginning to appear, as the third post-war trade-in survey conducted by *Electrical Merchandising* reveals that five refrigerators are now being taken in trade for every 100 sold. Comparing this survey, covering the first six months of 1948, with the surveys completed in January and September of 1947, which showed a trade-in percentage of 1.11 and 1.3 respectively, the current trend is clearly apparent.

Even though the present figure of 4.81% may not be particularly impressive, the increase during the past year is significant, the magazine points out, for if it continues in proportion, (as it shows every sign of doing) the pre-war trade-in figure of more than 20% will be equalled before long.

A reliable guide to the emergence of a buyers' market is the number of dealers who express willingness to accept trade-ins. In January, 1947, for instance, only 12.6% of the dealers surveyed were inclined to take this burden; eight months later the percentage had jumped to 30.6; and now, in this latest survey, more than half the dealers (56.7%, to be exact) are on the bandwagon.

KNOW-HOW SHOW-HOW

BECAUSE we feel that the subjects are of industry-wide interest, the major part of this issue of THE REFRIGERATION INDUSTRY is devoted to topics covered at the recent "Know-How Show-How" convention of the National Association of Refrigeration Contractors. Some of the subjects cover merchandising and operating methods, others are controversial in nature—but they're all chock-full of "meat." Read them all; we assure you it will be time well spent.

NEW FROSTLINE GAUGES WIN WARM WELCOME

Figure 1700-S | Figure 1705-S | Figure 1700-ST

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Selling Commercial Refrigeration

By J. W. Krall
Tyler Fixture Corp.
Niles, Mich.

THE franchised dealer who possesses the necessary qualifications to properly cover the territory and to do a good job for the manufacturer must first secure assistance from the manufacturer that makes it possible for the dealer and his organization to become thoroughly familiar with the complete line of commercial refrigeration products and their application.

Then, with the assistance of the factory representatives, the dealer organization is taught sales presentation of the equipment, its various applications, and its limitations.

OUTLINE YOUR PRESENTATION

These demonstrations include a definite sales presentation outline that will guide the salesmen and provide ample opportunity to completely cover the product or products. A workable outline that has met with considerable success follows:

1. The need
2. How and why the company he represents can supply that need best
3. Usage and desire points
   a. Display and increased sales
   b. Proper preservation — temperature
   c. Ease of servicing—capacity
   d. Sanitation
   e. Low cost of operation
   f. Ease of erection
   g. Accessibility
   h. Beauty and eye appeal
   i. Low initial cost
4. Proof—examples—testimonials—photographs
5. Profit for the customer

After a dealer organization is qualified to properly present the product, a survey of the sales territory is made and broken down into various types of businesses. Sales promotion material is then directed into the sales territory, backed up by local advertising.

Dealer salesmen should then be assigned to their prospective territories. Canvassing and developing prospects that will terminate into sales of commercial refrigeration equipment entails much more than calling on meat markets and grocery stores. On every main street in the U. S. A. there are scores of prospects for commercial refrigeration equipment—often in places that many of us have been overlooking.

Let's take a bird's-eye peek of a typical "main street," whether in your town or mine. At the right we have a typical grocery store and market. Let's start here and see what can be done to replan this merchant's store—not just to sell him one or two display cases, but to work out a complete modernization plan to boost this merchant's sales and profits. Such a plan necessarily involves the use of many different types of commercial refrigerators and display cases.

"There she is, Son—the first place your Dad ever sold a beverage cooler!"

Next we have a bank. What would we sell to a banker? Why not sell him a low-temperature cabinet for his home. And the same applies to the shoe store owner and the proprietor of the ladies' ready-to-wear shop.

Next in line is a typical bar and tap room where bottled beverages are sold. Take a look at this equipment—if the proprietor is still serving wet bottles, he's a cinch for a new dry beverage cooler. If he serves food, sell him a reach-in, too.

Then we have the candy store where we can show the owner how to boost his ice cream sales by using a self-service low-temperature case.

And the main street theater, too, can be sold a low-temperature freezer for ice cream bars, cones, and frozen candy bars.

And don't pass up the hardware dealer, the department store, the farm implement dealer, or the appliance store that is doing an outstanding job. They make good prospects for many commercial refrigeration items.

All stores on main street are good commercial refrigeration prospects: hotels, restaurants, institutions, diners, grocers, meat markets, supermarkets, dairy and delicatessen stores, candy shops, drug stores, colleges, taverns, road-side inns, hospitals, and theaters. Jot these prospects in your note book and add many more to them.

Make a survey of your town. Build up mailing lists, a prospect follow-up system, literature supply, and all necessary sales tools. Call your salesmen together, and start a concentrated sales drive. That's the way to insure profits in 1949.

SPECIALIZATION PAYS

In developing sales personnel, the dealer will find that a very low percentage of this sales personnel will be qualified to handle the entire line. As salesmen become grooved, they usually develop a liking for certain items in the line, the reason being that they have become expert and successful in selling these particular items. The dealer can easily check this unbalanced job, by watching his monthly sales figures, and when laxity occurs on moving certain items, he must develop additional personnel to specialize in them and take up this slack.

The percentage of trade-ins on new sales is gradually increasing, and in most cases it is definitely the deciding factor in making the sale. It is, therefore, highly important that someone in the dealer organization who is not connected with the sales department be given the responsibility of determining and passing upon trade-in equipment.

TRADE-INS CAN BE TROUBLE

Trade-in equipment is, as a rule, obsolete, and has served its usefulness. The sharp prospect will never admit that the proposed trade-in equipment has reached the stage of obsolescence, and invariably his own personal appraisal is excessive, as compared to the actual value. Of course, the salesman is desirous of closing the sale and too many times he becomes an ally of the prospective purchaser, thus placing the pressure upon the dealer.

Trade-ins, of course, have their seasons. When sales volume is high, and the dealer is not too concerned

Continued on page 59

Selling Room Air Conditioners

By H. E. Wheeler

Air Comfort Corp.
Chicago, Ill.

SOMEONE might naturally be skeptical as to why anyone who is selling room air conditioners would be willing to tell his competitors how he does it. I have not the slightest fear in this regard, however, for two reasons—one is that the field is enormous and there is plenty of room in it and competition never hurt anybody; and the other is, that I know no one will take my advice.

We have had this experience before, and we cannot even get our own dealers to sell room conditioners the way we sell them.

Here, however, are a few brief principles of our merchandising policy.

Chicago is not commonly considered the ideal climate for this kind of business, but anything I have to say about selling room air conditioners applies to this type of climate. I have had no experience in selling air conditioners in very warm or semi-tropical climates where the problems and procedures might be quite different.

Our experience is based on nearly 15 years of trial and error, and we have recently been selling these units at the rate of nearly 1500 a year. The following are a few of the essential things we have found we cannot skip or omit if we are to be successful:

1. There must be a separate department for this operation, even if it only consists of one man. This department must have nothing else on its mind but the sale of room air conditioners, supplemented in the winter by other items which sell to the **same customers.** So far, we have never found anything to fill this second bill except window ventilators and humidifiers.

This is the provision that I have no fear of being adopted by others. Everyone will try to find some way to have their salesmen sell room conditioners to a man in his office one day and a 3-hp unit to a storekeeper in a store the next day, and they will end up the season with a total sale of room conditioners that you could put in your eye.

2. This department must be self-supporting the year around. It is not possible to train salesmen and installation crews, use them, and let them go again. As a result of this necessity, salesmen must be taught to sell units the year around.

3. All of our salesmen are on a straight commission basis. The subject of how to hire them and how to train them is too long for this article, but one of the prime considerations is to take them on so few at a time that they can be given thorough training and put on a successful money earning basis before they are turned loose on their own. If you have a salesman who is not making money, get rid of him.

4. The customer must be sold on all the advantages of a room conditioner except cooling so thoroughly that he would buy the machine even if it did not have cooling.

Continued on page 50

Selling Air Conditioning Construction

J. J. Floreth

Westerlin & Campbell Co.
Chicago, Ill.

I HAVE interpreted this subject to include that type of air conditioning equipment which requires additional services and construction to properly perform its intended duties. This would include such auxiliary constructions as air distributing systems using sheet metal duct work and grilles, insulation, temperature control systems, auxiliary heating systems, and the more extensive type of electric power, water supply, and waste facilities.

Probably the dividing line between "package air conditioning" and "air conditioning construction" roughly falls at 3 to 5 tons.

My work during the past three years has given me an excellent opportunity to observe and study the sales methods used by various organizations in the air conditioning field that lies between 5 and 20 tons.

Sales methods vary widely between organizations. Also there are vastly different approaches to the selling problems in metropolitan districts as contrasted with rural areas.

An analysis of methods in general use today indicates that air conditioning sales in the 5 to 20-ton classification may be roughly grouped into three techniques, which I will briefly discuss in the order of their predominance.

I would call the first and most common sales method an "engineering approach", and it is the standard of most sales organizations who handle this class of work. In general, it consists of approaching each prospective sale and installation as a separate engineering and design problem, and involves more or less elaborate field survey, load calculations, and equipment selection and balances, plus the design and estimating of all types of auxiliary construction needed to complete the distribution of conditioned air, control of temperature in separate zones, and so forth. All of this is done in advance of the actual sale and without commitment on the part of the buyer.

Many organizations approach even a small 3 or 5-ton job on this basis and have been forced to maintain a sizable technical staff consisting of engineers, estimators, and draftsmen to supplement their sales personnel. If the salesmen handle all of their own engineering and design, special training and experience are required and each man handles relatively few jobs per month.

Although the larger and more complex installations obviously necessitate this type of complete engineering approach, and it may be occasionally warranted by even small special jobs, I can assure you it is a costly method of selling air conditioning and has greatly limited the profits of this class of work.

This is particularly apparent when a considerable volume of individually designed work is bid on a competitive

Air Conditioning Construction (Cont.)

basis and the percentage of sales secured must be charged with the total engineering burden, including the time and expenses incurred on those jobs which were lost to competition.

Some organizations have attempted to realistically face this burden by establishing an engineering fee in addition to normal overhead and profit charges, but are still faced with the prevailing market level of this work, which is, of course, influenced by competitive situations and many broader economic aspects entirely beyond their local control.

If we assume that the average selling price is established by these broader market and economic aspects, then the engineering fee merely becomes a percentage of the overhead or profit and the net result is essentially the same.

THE "SELLING APPROACH"

In recent years, a number of companies which have entered the air conditioning construction field have brought with them a broad experience in the merchandising of heavier appliances, often not related to refrigeration. Some of these companies have attempted to adapt their existing successful merchandising tactics to air conditioning construction sales, and their methods might be grouped into a second classification, which I will call the "merchandising approach."

I have in mind a very successful firm whose business was originally built on the sale, installation, and service of such heavy appliances as household refrigerators, electric and gas ranges, automatic washing machines, and so forth. This firm first entered the air conditioning field by adding ½ and ¾-hp room coolers to its appliance lines and continued to successfully merchandise these items.

PACKAGED PRICES TRIED

When these people entered the air conditioning construction field by adding larger self-contained units to their line, they attempted to follow one of the basic principles of merchandising—namely, quoting a standard installed price complete with one year's service.

Their price attempted to include all sheet metal air distributing systems, control systems, electric wiring, plumbing, and other auxiliary constructions on a unit basis, and considerable study was devoted to arriving at average costs on a floor area, cubic content, and tonnage basis.

They wanted to place their salesmen in a position to quote on a complete 3- to 20-ton air conditioning installation after a few hours of survey and estimating, and always on his first contact with the prospective buyer.

"RULE OF THUMB" FAILS

Other organizations have attempted many variations of this merchandising approach, and I recall efforts to reduce the air distributing problem to a price per running foot of duct work, electric wiring to a unit price per horsepower, and many other intelligent construction cost analyses that would result in a basic formula necessary to merchandising—namely, that of a completely installed price that could be determined with minimum time and expense.

Although some organizations continue to use variations of this formula, I have not yet seen it successfully applied to a large volume of air conditioning construction, and frankly doubt if it can be developed to a degree that will overcome its many drawbacks.

MATERIAL COSTS VARY

All of these straight merchandising approaches have been confronted with a rising cost level during the post-war period. For example, sheet metal costs have risen from 50% to 100% and vary widely between different localities and individual contractors.

The same has been true of all basic constructions involving a predominance of labor, and it seems impractical to arrive at a sound construction equation that will conform with market price levels and still allow for the many variations and contingencies of air conditioning work.

These merchandising efforts have, of course, been meeting technical competition, and the average buyer still seems reluctant to consider a promptly quoted blanket price as sound as the bid where obvious time was devoted to surveys, calculations, layout drawings, etc. We all like to think our particular requirements are just a little different or special, and the average air conditioning buyer seems to prefer the tailor-made approach.

There are definite evidences of lost sales where the installed price quoted from a merchandising formula could not take into account the construction savings peculiar to certain projects, and resulted in the blanket price being out of line with carefully engineered competition. If you lose the majority of these jobs and wind up with a predominance of low profit work where the formula price failed to provide for special construction problems that materially increase installation costs, it is obvious your overall profit pattern will be unsatisfactory.

THE "COMBINATION APPROACH"

I would like to offer for your consideration a third approach, which, for want of a better name, I will merely call the "combination approach" because it is a combination of merchandising and engineering application principles. It is currently being tried by a few organizations with which I am personally acquainted, but I do not believe it is in common use today.

This sales method attempts to separate the self-contained air conditioning unit or equipment from auxiliary constructions, handling the equipment sale as a merchandising problem, but continuing to treat auxiliary air distributing systems and construction as a special engineering problem.

TYPICAL EXAMPLE CITED

Let me illustrate this method by supposing a typical sale of air conditioning to a small women's apparel shop which might involve a 5-hp self-contained air conditioning unit, commonly referred to as a store cooler, plus 75 feet of air distributing duct work, typical electric wiring and plumbing connections, and a small exhaust system with its inter-connected controls.

The installed price of the self-contained air conditioner, which includes the refrigerating cycle, heating and cooling coils, air filters, and fan, is a function of its base price, fob point of manufacture, plus freight, hauling, installation materials and labor, and service reserve, to all of which will be added normal overhead and profit charges. The cost of the unit, including freight, represents the major portion of this group and is, of course, a known and fixed cost.

Sufficient experience with the other items in any locality proves that

Continued on page 58

Labor Cost Control

By Warren W. Farr

Refrigeration Maintenance Corp.
Cleveland, Ohio

IN compiling a survey of labor cost control, it was necessary to investigate the various types of service operations. Primarily, three types of operations were observed—the large operator employing in excess of ten employees, the small operator employing less than ten, and the service operation which is a department of a larger sales operation.

For the purpose of this discussion, the service department will be treated as a separate operation, and reference to sales will mean parts sales made by the service department.

No one formula can apply to all types of service businesses. However, good labor cost control will pay dividends in all service operations.

Usually, service labor revenue accounts for from 25% to 50% of total income. Labor costs account for a greater expense percentagewise than they account for income saleswise, as a fairly high percentage of the labor employed is not sold, but rather is hired to do the tasks that keep productive mechanics in the field.

Examples of this labor would be the man who supplies the parts to servicemen and fills gas drums, bookkeepers, service office personnel, and the many other persons necessary to support the good service and installation department. All of these operations are important functions in the service department, but all of them fall in the overhead classification. Their labor is not directly sold to the consumer.

With these facts in mind, it becomes extremely important to operate service mechanics efficiently, as they must carry, in addition to their own cost and a fair profit, the other labor overhead in the department.

Overhead does not stop here either, as the normal overhead of doing business must be added to the labor cost—such items as light, heat, power, insurance, telephone and telegraph, transportation, and many others.

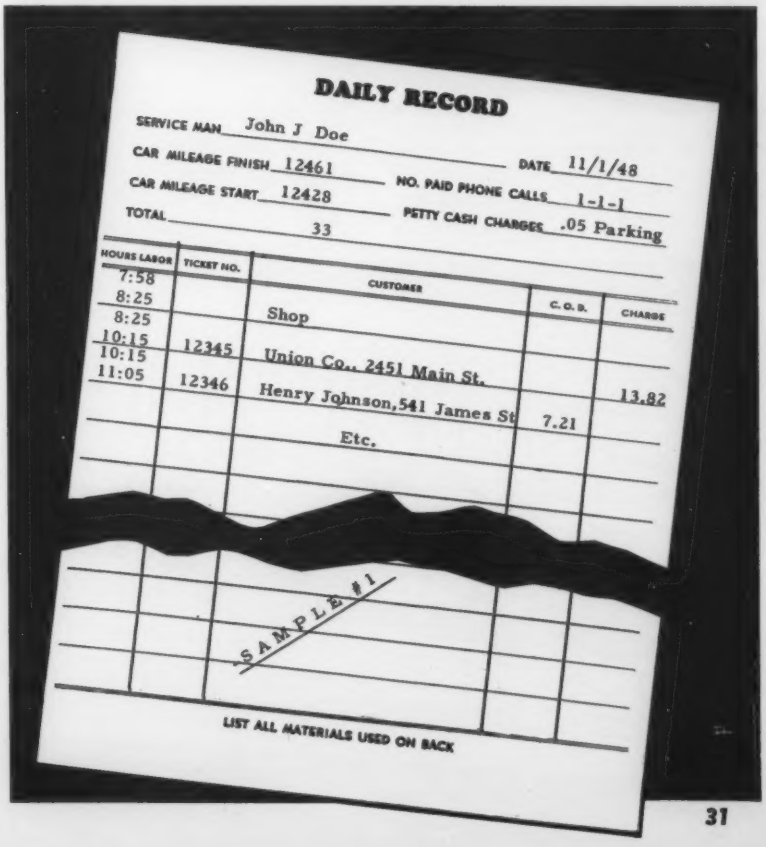
Proper records play an important part in labor cost control. They can be simple and do not necessarily have to tie in with the general bookkeeping system. However, when they can be designed for dual service, this is desirable.

Labor cost controls must give the operator a quick picture of one man as a individual, and of his complete operation as a department. The statistical information that the service operator secures from this record continually suggests avenues of improvement and points out weak links in the chain.

Sample No. 1, reproduced with this article, is a daily record card for each productive employee. This card can serve as a record for petty cash expenditures, as it provides space for a tally of phone calls, car mileage, and other petty cash expenses. It can also serve as a time card and can be punched in a time clock or handwritten in the column entitled "Hours Labor". It can further serve as an inventory control, as at the bottom it is marked, "List all materials used on back of card."

Instructions to all service mechanics provide that this card must be filled out by each man for every day worked. It should be filled out progressively during the day as the man proceeds with his work. When the first call is completed, it should immediately be recorded, complete with materials on the reverse side. Under no circumstances should the card be filled out after the day's work is completed. Extreme care must be exercised to secure a correct daily record card, as it is a basic record on which all department statistics will be accumulated.

Sample No. 2 is a report to furnish the service operator or the service manager with detailed statistics for



Labor Cost Control (Cont.)

each man in his department, together with detailed statistics for the overall operation. Reading each line from left to right, the record of the individual can be observed. Reading the bottom figures in the same manner, the service department totals are available.

These various items provide the service operator with vital statistics within his department. He knows the percentage of his business that is transacted for cash. He knows his credit problems by the size of his charge sales. He can distinguish between servicemen, and determine, for instance, whether one makes a higher percentage of material sales than another on a particular number of service calls.

One of the most important features of this report is the productive hours and non-productive hours for each mechanic, and the total productive hours and non-productive hours for the department.

Productive hours are those hours which are sold to a consumer. Non-productive hours are those hours which are spent in getting service calls in the morning and picking up material before actually getting out on the consumer payroll, in call-backs, making telephone calls to the office during the day, picking up material not carried and available for service, and many other things which cannot be billed directly to the customer.

SAMPLE NO. 3

	Journeyman A Regular	Journeyman A Overtime	Journeyman B Regular	Journeyman B Overtime	Construction Work Regular	Construction Work Overtime
Hourly Rate	1.875	2.81	1.525	2.29	2.375	4.75
OAB Tax (.01)	.02	.03	.01	.02	.02	.05
State UC Tax (.009)	.016	.025	.013	.020	.021	.042
Fed. UC Tax (.003)	.005	.006	.004	.006	.007	.014
Insurance (.007)	.014	.019	.010	.016	.017	.034
Workmen's Comp. (.007)	.014	.019	.010	.016	.017	.034
Car	.25	.25	.25	.25	.25	.25
60% Billing Factor	.75	1.12	.61	.92		
	2.94	4.28	2.43	3.54	2.71	5.17
15% Overhead	.44	.64	.36	.53	.41	.78
	3.38	4.92	2.79	4.07	3.12	5.95
* Average Hourly Cost	3.64		3.00			

Pipefitter Rate	2.375	Apprentice, 2 Years, 40%	.95
Class A Journeyman	1.875	Apprentice, 3 Years, 50%	1.1875
Class B Journeyman	1.525	Apprentice, 4 Years, 60%	1.425
Apprentice, 1 Year, 30%	.7025	Apprentice, 5 Years, 75%	1.78125

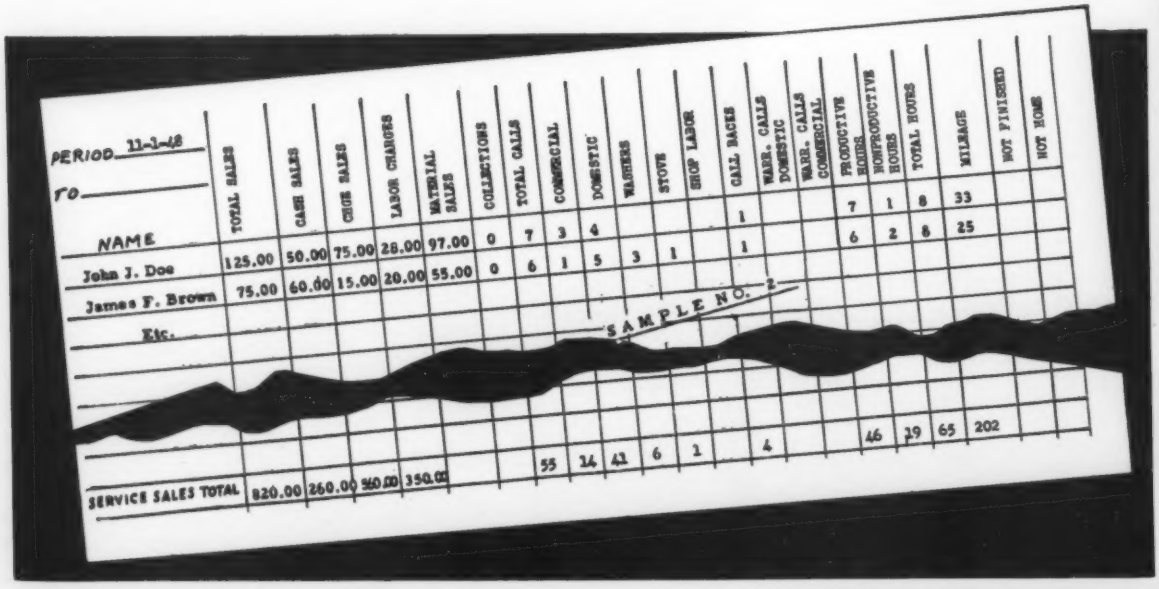
* Average Hourly Cost is figured by adding 40 hours at regular time and 8 hours at overtime, and dividing this total by 48.

The service operator can, at a glance, determine how many calls per day a man is making. He also can glance down his report and determine the number of miles that the serviceman has driven to make this number of calls, and such a comparison might immediately suggest that better routing would be in order. Likewise, it is possible to observe if some men are making more than their share of calls, or others are making far less than they should be.

It is often desirable to prepare graphs using certain items from the report, and have them available where they can be observed by the service mechanics themselves. Productive hours, particularly, fit into the category of a subject that can be well illustrated by the use of a graph.

It is interesting to note that, of the service operations studied, the average productive hours of the department was approximately 60% of the total hours paid for by the service operator. This means that 40 out of every 100 hours must be absorbed in the overhead of a service operation. Continuous effort must be expended to reduce non-productive hours and

Continued on page 51



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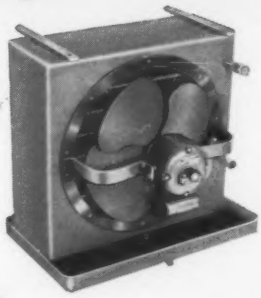
Rear View



Quality Features That Mean Better Performance

- **Equipped with the high-efficiency cross-fin coil originated by Larkin—copied by many, equaled by none.**
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- **Heavy-gauge, rust-proof aluminum case; designed to save space and please the eye.**
- **Lighter weight for easier installation.**
- **Adjustable louvres are standard equipment.**
- **Rugged motor, totally enclosed.**
- **All fastenings vibration-proof airplane-type; no insecure sheet metal screws.**

LARKIN COILS

THE WATCHDOG OF THE NATION'S FOOD SUPPLY

519 MEMORIAL DRIVE, S.E.
ATLANTA, GEORGIA

ORIGINATORS OF THE CROSS-FIN COIL

Parts Inventory Control

E. Stuart Files
R. Cooper Jr., Inc.
Chicago, Ill.

WHAT do we mean by Parts Inventory Control? The term "inventory control" is rather loosely used to cover two functions which are really quite different. These two functions which might be called "accounting control" and "operating control" are related to each other only in that they both require the maintenance of adequate records of inventories, receipts, and issues.

The purpose of each can be defined as follows:

"Accounting control" of inventories is concerned with the safeguarding of the company's property, and the proper recording of the receipt and consumption of materials and the flow eventually to customers. "Operating control" of inventories is concerned with maintaining inventories at the optimum level, considering operating requirements and financial resources of the business.

YOU NEED PARTS CONTROL

You may very well say, "why do I need parts inventory control?" In general, my answer would be that the rapid changes in models, designs, competitive offerings, and consumer acceptance, indicates a need for control of inventory. The transition from a seller's to a buyer's market which requires sales decisions to be made on your part presents a need for a factual basis for these decisions. I think that a part of the answer is in a good inventory control system.

Now, I am talking about a system of control, not a set of records of one form or another which is merely a historical record of transactions that took place. A control must be provided which is sensitive to the changes in demand for each item in order to stop surplus accumulation, obsolescence loss, and out of stock conditions, which are a source of considerable expense, whether you realize it or not.

The turnover of stock affects the entire operation of a business because profits come from goods that move, and not those that lie in the stock bins. Your skill in controlling inventory is one of the really important things which will make your business a thriving one.

Without effective inventory control a prosperous organization can quickly become unprofitable as a result of losses suffered on excessive or unbalanced stocks. Slow moving inventories not only tie up your working capital, capital which might be profitably employed elsewhere, but ever mounting carrying costs eat into profits.

The interest on money invested in stock, the shipping and handling costs, the cost of insurance, rent of the storage space used, the wages of the people required to handle excess stock, losses due to obsolescence, and mark-downs—these carrying costs amount to approximately 1% per month of the value of the stock on hand. Some concerns, I understand, have found annual carrying costs running even higher than this—sometimes as high as 18 or 20% of the inventory value a year.

MAKE YOUR DOLLARS WORK

Make your dollars work by maintaining closer control of inventory and improving turnover. Think for a moment of the amount of money that you now have invested in parts. Supposing through better control of stock levels you are able to reduce the capital you have invested in parts by 50% or even 30%.

What have you done? You have made available for other profitable use in your business a sum of money that conceivably you might have had to go out and borrow. You have reduced the carrying cost of your inventory and you have done it merely by effective inventory control which will result in improving your inventory turnover ratio.

Serious business losses occur from over-stock and slow turnover. A temptation to over-buy for the purpose of securing discounts leads directly to slow turnover and high cost of possession. On the other hand, let me caution you about the danger of too fast a turnover on fast moving, popular items. This results from carrying skimpy stocks and ordering so often and in such small quantities that the cost of obtaining these items goes up. Light stocks lead frequently to an out-of-stock condition which hampers your work and may sometimes result in a loss of customer good will.

I do not propose to tell you what the ideal turnover rate should be for your business, but I can point out that in some businesses, such as coal and grocery concerns, they make their greatest profits on turnover from 10 to 20 times annually. For the majority of concerns a profitable turnover is somewhere between four and eight times per year.

POLICY DECISIONS NECESSARY

What decisions are necessary to the development of an intelligent inventory control? Please bear in mind that the basic policy decisions which I am about to state are guiding principles, and not iron clad rules or detailed procedures.

(1) What is to be the company's policy as to service to customers (12 hours, 24 hours, or longer)?

(2) Must the availability of capital be taken into consideration, and if so, what are the approximate limitations on the funds that can be used for inventory investment?

(3) Is the purchasing policy to be strictly non-speculative or is forward buying for price advantage to be permitted?

(4) What weight is to be given to the possibility of cost savings by purchasing larger lots than are strictly necessary to meet normal requirements?

(5) What is the availability of the parts?

CONTROL SYSTEMS VARY

With respect to the various methods of stock control that are available, we might point out that these run the gamut from the most simple to the most detailed systems.

Visual inspection of stock might be a basis for determining your requirements, although this seems to me to be a more or less hit and miss way of operation. You might install a simplified form of bin record. Or, you might install an elaborate system involving stock records cards that will

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The MANUFACTURER looks at

Condensing Unit Guarantees

By L. W. Larsen
Tecumseh Products Co.
Tecumseh, Mich.

(Presented by H. M. Kelso, Tecumseh Products Co., Tecumseh, Mich.)

IN discussing the matter of warranties on compressors and condensing units, we cannot presume to speak for the entire industry. We can only outline to you our own company policy and the reasoning back of that policy.

Fundamentally there are two theories of warranties. The first of these is an assurance to the ultimate purchaser that there are no mechanical or other defects in the equipment purchased. The second is protection against the possible wearing out of any part or parts in normal use and service over a given period of time. The one protects against concealed defect; the other is an insurance policy covering normal usage.

Normally, a concealed defect in material or workmanship will become apparent within a relatively short time. In the refrigeration industry, it is quite common practice on such warranties to limit the time of liability to one year. In the case of our own company, our warranty is one year from date of manufacture with an additional three months allowed for time in transit and process.

This warranty has proven satisfactory with all manufacturing customers, some of whom purchase several hundred thousand units per year and others only a few hundred. It has also been our standard policy with jobbers, dealers and other normal merchandising channels of the refrigeration business.

The extended warranty or insurance policy type of warranty has been, and is, very common with the manufacturers of complete appliances.

In many cases the manufacturer of the appliance has carried his own

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The MANUFACTURER looks at

Valve and Control Guarantees

By F. G. Coggin
Detroit Lubricator Co.
Detroit, Mich.

MY remarks on guarantees express only my company's and my own opinions.

Guarantees have two general aspects: the legal one wherein the seller attempts to fix his legal responsibility for the performance of his product; and the sales aspect wherein the seller, by his guarantee, makes his product more desirable than his competitor's.

We all know, and have seen instances, of guarantees becoming just as competitive as prices. There is no limit to the liberality of a guarantee so long as the selling price will support its cost, and may we emphasize that a guarantee enters into the cost of a product just as much as do brass, steel, labor, etc. All are combined with a profit to arrive at the ultimate selling price.

The terms of a guarantee are ultimately determined by the buyer, not the seller. Does he want the cost of maintenance over an extended period of time included in the original selling price? A Rolls Royce and a Cadillac are both fine motor cars. The Rolls carries complete service to the original purchaser for the life of the car and sells for upwards of $17,000; the Cadillac is guaranteed for 90 days and sells for $3500.

Most guarantee problems evaporate when all parties involved in the sale of a product thoroughly understand two points:

1. A guarantee is a part of cost of production.

2. The exact terms of the guarantee.

These terms may vary from the extreme expressed by the Latin term **caveat emptor** meaning "buyer beware", to the "not for life—but forever" guarantee of a well known pen manufacturer. Between these two extremes lie the guarantee policies of modern industry.

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Members of the panel on Guarantees (left to right): J. P. Glass, F. G. Coggin, H. M. Kelso, and H. J. Jessell. Emil Flanik, spokesman for the contractors, is not shown.

The WHOLESALER looks at

Condensing Unit Guarantees

By H. W. Small
Thermal Co., Inc.
St. Paul, Minn.

(Presented by Harry J. Jessell, Thermal Co., Inc., St. Paul, Minn.)

IT is strange that the industry that guarantees our cars for 90 days or 5,000 miles will guarantee our refrigerating machines for one or even five years.

If we were to drive a new automobile at 30 miles an hour 16 hours a day, we would find that our warranty had expired on the eleventh day. On the same basis, the one year warranty on the refrigeration unit would be the equivalent of 175,000 miles of driving. This in spite of the fact that commercially applied condensing units are subject not only to mechanical hazards, but to the hazards of misapplication and faulty installation as well.

Off hand, it would appear that the manufacturer could ill afford such liberalism. This is not the case, however, and a careful study of the warranty will disclose the reason.

Universally the manufacturer agrees to replace the defective part on an f.o.b. factory basis should inspection prove it to have been of faulty manufacture. None agree to replace worn-out parts. All disavow all types of contingent liability. I refer particularly to open type machines and not to packaged items or certain types of hermetic units.

It is obvious that a strict interpretation of this type of warranty would reduce the number of parts replaced to a minimum. Unfortunately the installer of the machine doesn't believe the warranty. He often takes the position that the warranty will guarantee to him the satisfactory operation of the unit for one year including parts in need of replacement due to wear, abuse and even misapplication. For instance, units marked "For Use With Freon-12 Only" have been returned for replacement after being used on methyl chloride systems. Frozen water-cooled condensers have been sent back on numerous occasions.

The wholesaler is surely a "middleman" on condensing unit warranties. He is up against a strict warranty from his supplier and can expect few policy adjustments. His customer wants the guarantee to be all-inclusive. He asks for lost refrigerant, labor, mileage and wants 100% of his profit protected.

The wholesaler is forced to make policy adjustments far beyond that which he will receive from the manufacturer, all of which has to be done within a below-average profit margin.

As wholesalers, our warranty problems are very real and often painful. We feel that our customers often expect too much. Some try to take advantage of us. By and large we recognize the contractors' predicament and hope an equitable solution can be found to improve both our customers' and our own profits.

The basic problem is simple. Our suppliers only guarantee to replace parts which failed due to manufacturing defects. Our customers take the same unit and provide the user with an all-inclusive guarantee of satisfactory operation without cost for either labor or material.

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The WHOLESALER looks at

Valve and Control Guarantees

By J. P. Glass
Chase Refrigeration Supply Co.
Chicago, Ill.

Let's consider the wholesaler's function regarding guarantees on valves and controls.

Where the wholesaler is the manufacturer's outlet for a product, the wholesaler follows the manufacturer's policy regarding the guarantees of the product.

To the very letter, you undoubtedly are aware of the replacement policies that your wholesaler extends to you. The wholesaler's intention is to replace valves or controls to you as fast as possible. Most wholesalers accomplish this either by shipping it back to the customer the same day, or by exchanging it over the counter on receipt of the defective product.

I would like to elaborate just a bit on the number of times your wholesaler must handle a replacement. There are actually 6 different times the product is handled:

1. Wholesaler receives product.
2. Wholesaler ships to customer.
3. Customer returns to manufacturer.
4. Wholesaler returns to manufacturer.
5. Manufacturer returns to wholesaler.
6. Wholesaler returns to customer.

In each case the wholesaler pays the freight charges.

It is obvious that the wholsaler is subject to the demand of his valued customers and he is also subject to the various requirements necessary to maintain his position with his valued suppliers.

It is also obvious that due to the numerous sources of supply with whom the wholesaler does business in order to furnish the thousands of items needed to render the proper service to his customers, he is constantly on the alert to advise the suppliers relative to the varied opinions which come to his desk from time to time by way of his customers.

Finally, it must be remembered that any problems confronting the wholesaler's customer is a concern of the manufacturer. NARC, RSES, REMA and REWA all have standing committees for trade relations through which all pertinent matters should be channeled.

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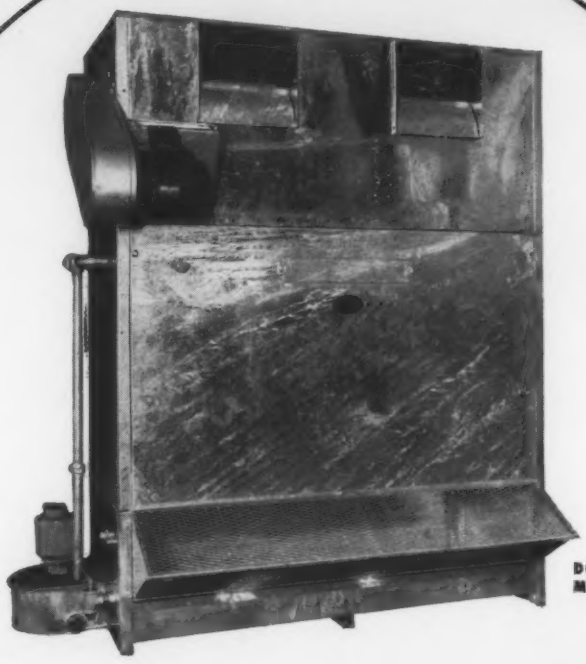

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The Contractor Looks at Guarantees

By Emil Flanik
Allied Refrigeration Corp.
Cleveland, Ohio

WHEN the refrigeration industry first attempted to sell the low pressure fractional horsepower equipment to the public, the public acceptance was such that it was necessary to give a one year complete warranty on materials and labor.

We find that to the present time most refrigeration contractors still adhere to this ancient policy of a bygone day, even though they know that it is costly, unwise, and unnecessary.

We all know that, as times change, methods of doing business must also change to keep in step with progress.

"YOU ARE CONFUSED . . . "

You contractors are representatives of an industry which is new. It has been born since most of you have attained a mature age.

I state that you are confused, that you have looked in the past for business leadership and for guidance from the manufacturing group, and they have let you down. You are being used to further their profits, to assume responsibilities which are theirs, to assume contingent liabilities which are not rightfully yours. All of us know that the present so called manufacturers warranties do little except unload the responsibility for failure of a piece of equipment on the contractor.

CONTRACTORS ARE PENALIZED

Transportation charges prepaid, plus the right of the manufacturer to determine whether or not the equipment was defective when it was shipped, are just two loopholes.

Quoting our past president, Warren W. Farr, "the contractor has been seriously penalized in fulfilling guaranties and warranties which have been written primarily by manufacturers and without consultation with contractors. The point is presently proposed that the contractor should pass on to the consumer the manufacturer's warranty as it is given to him, rather than to indicate to the consumer that as a contractor he will fulfill all the terms of the warranty."

Some contractors groups in various sections of the country have adopted a plan whereby the manufacturer's warranty is extended to the purchaser, with the contractor assuming a 90-day free service warranty.

Some contractors cannot change their warranty policy because their contracts with the manufacturers that they represent have clauses such as the following: "dealer agrees to install any part or parts furnished by manufacturer under its standard one-year warranty and to furnish service during such warranty period on any manufacturers products or parts installed in dealers territory without charge to the owner or manufacturer."

Emil Flanik points to a nationally published cartoon which burlesques one of the contractors' most grievous complaints against manufacturers' warranty policies.

NARC's warranty committee has noticed that some modification of manufacturers' contracts with contractors have been taking place.

In a recent letter from one of the largest electrical and refrigeration manufacturers in the country, the other extrme is noted. "As between the contractor and his customers, the matter of warranty, of course, is one to be negotiated between them as parties to the contract for the sale and installation etc. of equipment."

Your association has in its files a letter mailed by an air conditioning company to its dealers. The letter being too lengthy, I would like to just quote the following: "That because 'Freon' has been charged into the machine prior to shipment, that we guarantee the Freon to be in the machines at the time of delivery or until expiration of the warranty period. In a large majority of cases . . . . the entire charge of Freon is in the machine at the time of delivery. . . . However, we assume no liability for the loss of any Freon for any reason whatsoever, and do not agree to furnish . . . . the required amount for successful operation."

It would be interesting to know how much Freon contractors have given away in warranty periods on factory built self-contained pieces of equipment. It also would be interesting to know if any manufacturer or manufacturers replace Freon as a policy to their contractor or dealer when used on self-contained equipmen within the manufacturer's warranty.

WHAT A CONTRACTOR MUST DO

Let us look at some of the things with which a contractor is confronted in his everyday pursuit of business.

In making sales, the following pattern pretty much holds true for the contractors:

1. First sells himself, his honesty and integrity to the customer.
2. Finds out what the customer wants.
3. Sells him what he needs.
4. Engineering.
5. Purchase good material from reputable manufacturers.
6. Installation and balancing of system.
7. Free adjustment period.
8. Have an honest profit left when the free adjustment period has been concluded.

If a job is sold, installed, and serviced right, the customer is happy and invariably leads to future repeat sales.

LOOPHOLES IN WARRANTIES

Now, let's examine the loopholes and see what happens to the profit when warranty goes to work.

Let's take engineering first. In the past the contractors have engineered jobs, taken the job's Btu requirements, and selected equipment from reputable manufacturers' catalogs. Then, after installing the equipment, they have found that after spending much money on warranty, it was necessary to purchase and install larger equipment, resulting in used inventory stock that he didn't want or need.

The contractor, finding that the manufacturer would not accept the return of the equipment or pay for the wasted hours used up in finding out and correcting the job due to inaccurate published Btu ratings, have

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Selling Refrigeration Service

By J. J. Geering
J. J. Geering Sales & Service
Milwaukee, Wis.

(Presented by Harry Bransky, Bransky Refrigeration Co., Chicago, Ill.)

AS I look back over the years, I remember that the most successful salesmen were men who had spent several years in doing service work and who developed and enjoyed a certain appreciation that they were rendering a real service to someone.

Usually when you find a man that thinks this way you will also find that he has personality and gets along with people—the main quality in any salesman. Try to develop him further by giving him some sales tools and getting him to realize that he has these latent qualities which he should put to work on making sales.

Sometime ago the Carnegie Institute made a survey which revealed that of all the failures in salesmen only 15% were caused by lack of knowledge, ability or work, and 85% could be traced to personality defects that kept them from influencing the prospect.

This recalls to mind an incident which happened several years ago. I am sure all of you could relate similar cases, and I would like to tell you this story to illustrate the personality angle.

One day a tip was received that Joe Grocer was in trouble and intended to buy some new equipment.

Salesman Sam went to see Joe Grocer, and, after a quick survey, suggested that if Joe Grocer purchased a new condensing unit and a few valves he would have practically a new installation; and it was a good thing for him we had just the unit he needed in stock; and the work could be done that afternoon; and the entire cost would be only $550.

Joe Grocer said that seemed alright, but that he was planning on doing some remodeling in the future and would like to get by at this time with just a repair job.

Salesman Sam said, "Alright then, let me send out one of our servicemen to see if he can help you, and when you are ready to go ahead let me know."

The service dispatcher gave the call to Otto Wrench. Otto was the kind of a fellow who always had a smile and he could say that you were crazy and get away with it.

Well, Otto arrived on the job, listened to Joe Grocer's troubles and went to work. In a short while everything was shipshape.

While waiting to make sure everything was okay, Otto suggested that Joe Grocer ought to consider in his plan one of the new fandangled double duty cases, which would eliminate the cloudy glasses and make it easier for his customers to see the products on display, and also a new reach-in box in white dulux to match the case with glass doors.

To his surprise, Joe Grocer inquired as to the price. Otto called the office, got the prices and came back with a signed order for the case, the reach-in, and new condensing unit. The total sale was $3200, with a $1000 down payment.

This sale opened the eyes of the the sales manager, who made a personal investigation. He was told by Joe Grocer that the salesman never suggested the idea of a new case and that he appeared arrogant, while the serviceman impressed him. He bought immediately because the serviceman was not trying to sell him, merely suggesting.

Therefore, with this instance in mind, I heartily recommend that you do everything in your power to develop this basic trait in your servicemen—**Personality.**

Selling Service Contracts

By Harvey O. Miller
Murphy & Miller, Inc.
Chicago, Ill.

(Presented by T. J. Reedy, North Town Refrigeration Corp., Chicago, Ill.)

IN discussing "contract sales," better known as "maintenance contracts," I believe we should analyze the complete maintenance contract structure, and with this thought in mind I wish to present the following breakdown in four separate sections:

1. Why do we have maintenance contracts?
2. What are their advantages?
3. What are their disadvantages?
4. What is needed in order to offer the service to your customer?

Going back to number one, "Why do we have maintenance contracts?", I submit the following as reasons why we have them. They are listed in the order of their importance:

1. To tie up a customer. In other words, put him in a position where he is bound to call us when he needs service.

2. To provide work for the men in a normally slack time. In this connection I refer to maintenance contracts that contain periodic lubricating and checkup service.

3. To provide fairly positive income.

What are the advantages of maintenance contracts? What do they offer the customer?

The most important advantage to the customer is the set or fixed yearly maintenance cost. This is of great importance to customers who forecast and budget their business. To the customer it is an insurance policy against higher maintenance cost.

I believe the advantages to the contractor are covered in the first section, "Why do we have maintenance contracts."

As for section three, disadvantages of maintenance contracts, I know of no disadvantage as it applies to the customer. I believe we should refer to risks instead of disadvantages when we approach the contractor's side of this question.

When we sell maintenance contracts, we put ourselves into the insurance business. I am not too sure we belong in the insurance business and, if we do, there is a question as to what percentage of our total business we should do in this type of activity.

There is a certain amount of gam-

Selling Service Contracts (Cont.)

ble connected with maintenance contracts that requires definite reserves as a cushion to fall back on in case of an epidemic of breakdowns.

When pricing a contract, we face another risk. Unless we have records covering years of experience on the particular piece of equipment up for pricing, we have to guess at the price to a certain degree, and guessing is a risk and a big disadvantage.

Last, but not least, we face unforeseeable increases in cost. We take a year's contract today based on today's material and labor costs, but tomorrow they both increase, with the result that we either lose money or fail to make our proper profit on the contract.

I believe we should put emphasis on selling maintenance contracts during lean years when the risk of increasing costs are less, and promote regular paid service during times such as we now have.

The risks I refer to are greater when you are taking maintenance contracts on all types and makes of equipment than they are when you are taking contracts on one manufacturer's equipment that you probably handle as a direct selling agent. Naturally you are very familiar with this equipment, well aware of its characteristics, and are in a position to take them into consideration when you are pricing your contracts. In other words, the risk is in direct relation with how familiar you are with the equipment.

WHAT IS NEEDED?

One thing is sure. If we sell contracts under today's conditions we certainly need the fourth section of this story, "What is needed to offer the service to your customer."

Of greatest importance is a foolproof contract form drawn up along the lines of some sick and accident insurance policies, which gives you the right to cancel at any time by refunding the unearned portion of the contract price. Naturally, this contract also must protect the contractor against responsibility in the event of misuse of the equipment.

Some contractors are using second year maintenance contracts as a sales tool in selling new equipment. I question whether this is good business. I understand that our contractors association is active in trying to reduce the time covered by the manufacturer's standard warranty from its present one to five year period down to a period that is somewhat more comparable to other lines of equipment such as automobiles and radios.

Surely, if we as an organization promote long term maintenance contracts we will find ourselves in a position wherein we are talking out of both sides of our mouth, and I personally feel that a single maintenance contract should not provide for servicing equipment at a flat rate price for any period longer than twelve months, without renewal.

Selling Service Parts

By Walter McCarty

McCarty Bros. Equipment Corp.
Chicago, Ill.

WHATEVER I say on the subject of "Parts Merchandising" is my own personal opinion which has been gathered from the sixteen years we have been in the service and sales business.

As I see it, there are three general classifications or purposes backing up the sale of replacement parts.

The first one, and I think the most important, is customer relationship. How do we leave the cutomer? How does he feel after we sell him these parts? The second reason behind the sale of parts is that if parts are properly sold to a customer where they are needed, the result will be a lower service bill to the customer. The third and last reason is the net profit to the servicing organization.

Let's take reason number one, customer relationship, first.

Suppose that in sending a serviceman out on a service call on a piece of equipment that has possibly not been serviced for two or three years, the serviceman finds the expansion valve out of adjustment. You are far better off replacing the expansion valve immediately than you are trying to adjust the expansion valve on the first call, getting a repeat call, going back on the second call and adjusting the valve again, and then finally, on the third call, replacing the valve.

If the valve were replaced originally on the first service call, whatever charges were made on the first and second calls would have been eliminated.

What I am trying to drive at is that by replacing the defective part immediately on the first call the customer's opinion of the serviceman will be a very good one. The customer will believe that not only the serviceman but also the service organization knows its business, because the serviceman went there on his first call, located the trouble, installed the new parts, and put the customer's equipment back into service.

Selling replacement parts in this manner can never result in a customer saying a service organization does not know its business.

The second reason for merchandising parts is a lower net service bill.

Let's use as a typical example a motor exchange. On the first service call the serviceman finds bad brushes in an electric motor that has probably been in service for three to four years. The serviceman installs a new set of brushes and thinks that he has done the customer a favor.

Probably, however, when the serviceman leaves the job the short circuit necklace is dirty, bearings can be bad, and possibly in a week or two the motor will burn out, resulting in a repeat service call and a large service bill for a rewound or new motor.

If, on the other hand, the serviceman on the original call, instead of merely replacing the brushes, had exchanged the motor right then and there, the net charges to the customer would have been much lower than they were for replacing the brush on the first call and then sell-

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General Licensing Experience

By Leslie D. Price
National Electrical Manufacturers Association
New York City

THE refrigeration industry is closely related to the electrical industry. Its legislative problems parallel those of the electrical industry closely. We are both concerned with laws and ordinances which effectuate installation codes; we are both concerned with contractor licensing.

Having considered the problem from all points of view, NEMA has come to the conclusion that licensing of contractors does more harm than good to the electrical industry. The reason may be summed up briefly in a simple statement that contractor licensing provides the means for abuses which are detrimental to the industry, to the contractors themselves and to the public.

Here are some of the factors leading to this conclusion.

Licensing statutes of states and municipalities are idealistically conceived in the public interest. These laws or ordinances are claimed by their advocates as necessary in order to protect the public against abuses. Ordinarily, when the abuses within the industry become prevalent, the public insists upon control. In the construction industry—and this includes the refrigeration industry—this is not generally the case. Ordinarily, the majority of those affected by governmental control resist governmental action designed to limit their freedom to do business as they see fit. No type of governmental regulation is thought of by businessmen as more objectionable than a licensing provision in which the right to enter or continue in an industry becomes subject to governmental control. Again, this is not so in the construction industry. It is natural that the public should wonder why this paradox exists.

It may well appear to the public that contractor groups, possibly without examining for themselves the pros and cons of licensing, have furnished the incentive for proposing such governmental control for the purpose of advancing their own interests. Possibly, we should examine a few case histories, which may substantiate this thought.

(1). Licensing may be used to bolster the position of a group of certain contractors by limiting the total number of persons entering in contracting work and thus reducing the intensity of competition with each other. There are many cases on record where licensing has been used to limit the industry to its present size, or to re-

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Licensing Benefits to the Public

By John C. Rehard
Chief Refrigeration Safety Engineer
Detroit, Mich.

PERHAPS in discussing the benefits that accrue to the public from licensing refrigeration contractors, it should first be pointed out that it was none other than the public which first brought about the necessity for licensing. Unscrupulous individuals making unsafe and otherwise faulty refrigeration installations had jeopardized human life and caused needless expense and trouble. The more respectable refrigeration contractors themselves recognized the problem that was confronting the public and played a very definite part in the proposal to license contractors as a means of eliminating the difficulty. Consequently, our first refrigeration contractor licensing provisions in the city of Detroit were passed in 1937, as a result of the clamor on the part of the public for safer, better, and more reliable refrigeration installations.

This original provision did not take into account the examination of the contractors to establish their fitness to engage in the refrigeration installation and servicing business. After a trial of a little over eight years, it was found that people were obtaining licenses under false pretenses and that, while reliable contractors were doing their work in accordance with city requirements, unqualified contractors, although licensed, were still jeopardizing the public safety and welfare.

EXAMS ARE KEY

Accordingly, in 1945, the city of Detroit inaugurated its first examination requirements for refrigeration contractors. Under this method of granting licenses, the would-be contractor is first interviewed by the Board of Examiners to ascertain the reliability of his statements in connection with his experience and his education. He is then subjected to a written examination which, if passed, entitles him to an oral examination conducted by the examining board. Upon his successful completion of these examinations, he is bonded and licensed by the city of Detroit.

The public benefits to the extent that he is responsible to the city of Detroit and its citizens for being permitted to practice his trade, and any violations of Code requirements or of the principles of good practice are punishable by fines. Along with the license, a bond, running to the city of Detroit, is also required. This constitutes an additional means of satisfying the demands of the public in extreme cases. Fortunately, there have been but very few cases where licenses have had to be revoked or suspended and still fewer where the bond had to be forfeited. However, in the light of recent developments that involve approximately 1% of the contractors who are consistent violators, it has become necessary to establish a more or less definite court procedure for these cases. Under this present plan three court convictions in any one year for infractions of the law will make revocation of the contractor's license mandatory.

The effect of our licensing provisions has been to produce a better, safer, and more uniform quality of workmanship. In addition, the "gyp artists" and the excessive expenditures to customers that they cause have, at least to a certain extent, been eliminated. It has also insured a far higher safety factor through a more reliable group of individuals as contractors and has, in general, made for a safer city.

Contractor Licensing Experience

By Neal S. Templin

**Refrigeration Contractors Association, Inc.
Los Angeles, Calif.**

FOR nearly 20 years, since 1929 to be exact, any contractor doing construction or repair work of any nature on real property in the state of California has been required to hold a state contractor's license.

To obtain a state license a qualifying written examination must be passed by the applicant. This consists of two parts, the first covering general subjects such as the laws of the state on building, safety, employment, wages, compensation insurance, mechanics liens, and so on, together with some questions on business administration and records.

SIMPLE TEST REQUIRED

The second part of the examination consists of a rather simple test of the applicant's knowledge of the specific field in which he desires to engage.

An applicant further must show a reasonable amount of experience in the type of contracting he intends to enter, either as a craft mechanic, or an employee of others, and must also submit satisfactory character and business references.

The whole theory of administration by the state is not to try to restrict or restrain any competent person from entering any field of contracting, but rather to see that those who do are of the proper caliber and have sufficient intelligence and basic knowledge so that the danger of the buying public being misled or "gypped" is minimized.

Enforcement of this state-wide licensing law is three-fold:

First, doing work covered by the law without holding a license is an unlawful act punishable as a misdemeanor by criminal prosecution.

GROUNDS FOR SUSPENSION

Second, a license may be suspended for a time, or revoked, for any of several grounds set forth in the law, upon due hearing by the state license board. The grounds for suspension or revocation include such things as abandonment of work, diversion of funds or property, wilful departure from plans or specifications, wilful disregard of any building code or of safety, labor or compensation laws, failure to keep adequate records, failure to complete a contract for the price stated or to pay labor and material bills from funds received from the job, etc.

Third, and in our opinion the strongest teeth in the law, is the provision that an unlicensed contractor can not sustain an action in any court in the state to collect money for work done that is covered by the act.

EXPERIENCE HAS BEEN GOOD

Now as to the contractors' experience under this 20-year-old law. I know of no one, whether he be a general building or engineering contractor, or a sub-contractor doing specialty work, who does not consider this law and the requirements imposed by it to be fair and just and who would prefer not to have it in effect.

There is a certain additional confidence inspired in dealing with a licensed contractor that might otherwise be lacking.

In addition to the California state contractor's license, several municipalities in the state have licensing requirements for various types of contracting work. Specifically the cities of Los Angeles and Long Beach, to name only two, have ordinances requiring the qualification by examination of any individual or firm doing refrigeration or air conditioning contracting in those cities.

LOS ANGELES QUALIFICATIONS

Their coverage of such work is more complete than the state's, not being limited to work done on real property alone.

To obtain a certificate of qualification in Los Angeles an applicant must pass an examination consisting of a written test, practical tests as may be required, and an oral interview before a three-man city board, at least one member of which is a contractor. The board is charged with giving an examination that shall, in its judgment, be sufficient to show that a person passing it has sufficient knowledge of the theory and practice of the refrigeration contracting business and trade to engage in the business without jeopardizing public safety.

There is a certain overlapping jurisdiction between the state and local authorities, although there have been at least two court tests of similar problems, carried to the highest court in the state, both of which have held that a city is without power to require a contractor already qualified under the state law to submit to further examination by the city.

Where the qualifying requirements are fairly imposed and no attempt is made to refuse a license for any cause other than incompetency, our experience is that such licensing is helpful to both the public and the contractor. Of course, where such codes are used to impose restraints and to restrict a qualified person from doing business, much more harm than good is done, and all segments of the industry should join in combatting such practices.

CITY LICENSES VALUABLE

It is our feeling that the city qualifications and licenses are valuable and necessary where, as in California, the state regulations only cover a part of the work or where no statewide regulations are in effect.

Enforcement of a city licensing ordinance follows generally the pattern of the state law in California, that is, doing business without one is usually a misdemeanor, punishable as a criminal offense, it may be suspended or revoked for cause but there is not the additional teeth of inability to sustain action for money owing as is in the state law. However, the cities, under their police power, have the right to stop a job from going in or running if the installation is made by an unlicensed contractor. A permit to install will not be issued to anyone but a licensed person.

BUSINESS TAX A HINDRANCE

There is a third type of license that is imposed by many cities that we do not like so well but frankly can't seem to do much about. That is the so called Business License or Tax imposed for the privilege of doing business within the boundaries of the particular municipality. This is normally imposed purely for revenue purposes and the tax may be established at a flat sum, or be based on a sliding scale according to gross receipts.

The cost of maintaining the many such business licenses for anyone doing business in a sprawling metropolitan area such as Los Angeles is so high that many concerns either limit their activities to certain portions of the area or do business without the formality of securing all the business licenses they should have in the hope that they will get away with the violation.

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MORE THAN 300 OFFICES IN PRINCIPAL CITIES OF THE UNITED STATES AND CANADA

The Case Against Licensing

By William B. Henderson
Air Conditioning and Refrigerating Machinery Association, Inc. Washington, D . C.

THERE can be no disagreement between us on the basic premise that the industry can progress and prosper only by giving the users of the products of our industry the best possible equipment and service at the lowest possible price.

The industry is injured by anything which retards industry progress; which harms or hampers the industry's ability to increase its service to its customers in providing constantly-better equipment at lower prices; or which diminishes individual ingenuity and initiative through agreements—even when such agreements are ratified by municipal ordinance or state law. I believe contractor licensing falls within this description.

We are all aware that some abuses exist in the industry. NARC has recognized this in published statements, one of which says: "Unless prevalent abuses and conditions (in the industry) are corrected voluntarily, by the contractors, in conjunction with the other segments of the industry, detrimental and restrictive legislation is bound to be passed by city and state governments." Implicit in this statement is the concept that existing abuses can be corrected voluntarily by contractors, but that if such voluntary correction is not made, "detrimental and restrictive legislation" is the inevitable result. It seems to me to be a fair interpretation of the NARC statement to say that it reflects the idea that any legislation to correct abuses in this field, where voluntary action is believed to be the real remedy, would be detrimental. Having made this general statement of position, which may have some merit, NARC then takes the completely-inconsistent position of attempting to saddle itself and the industry with detrimental and restrictive legislation at the local and state level.

My objections to contractor licensing are deeply rooted and stem from my firm conviction that the evils inherent in such legislation are much more dangerous than the abuses sought to be corrected. For the purposes of this discussion, I will concede the nobility of purpose promoting legislation of this kind. My point is—and the experience of other industries from which we should profit will show—that such contractor licensing legislation, whatever its avowed purpose, has often had the effect of

(1) Restricting competition,

(2) Allocating business,

(3) Increasing costs, not infrequently through formal or informal, direct or indirect, price-fixing agreements.

THE HUMAN ELEMENT

Actions on the part of contractors which bring about any of those results are, as you well know, violations of the laws of the United States, subjecting the violators to substantial penalty. The anti-trust prosecutions of the Department of Justice and the complaint proceedings of the Federal Trade Commission, against groups of contractors, too numerous to cite, are examples proving the point. Even though the proponents of contractor licensing, seeking to minimize their competitive difficulties through so-called "remedial legislation," approach the problem with the most high-minded intent, in practical operation the human element can and does knock altruistic theories into a cocked hat. That "human element" can rationalize an exhorbitant profit into a "fair profit"; a competitor who can do a job at least as well at a lower price, a "chiseler"; an examination so stiff or unfair as to discourage prospective competition as "reasonable and in the public interest"; etc. There are many variations of the reasoning of that "human element," much of which could hardly be called "high-minded" or altruistic."

The stern fact is that contractor licensing legislation limits the number who can enter the field, tends to eliminate competition between contractors, and gives existing contractors every incentive by agreement, express or implied, or by concerted action, to fix prices, allocate business, regulate output, and in general to control the market for their services. In brief, it gives existing contractors a monopoly by freeing them from the effects of competition and gives them a weapon which is almost certain to be abused.

The following may help to illustrate what I mean:

(a) There are some who claim that contractor licensing, with examination, is not merely a scheme for weeding out incompetent or dishonest contractors, but also and chiefly a means of limiting, artificially, the number of contractors in the particular field of installation, and thus of limiting competition. Whether this rumor is true or not, the fact remains that the number of contractors will be limited and competitive effects will be lessened.

(b) One hears of the costs of installations in other industries rising anywhere from 25% to 100% after the adoption of contractor licensing. Bearing in mind that our industry's future progress presupposes increased output at lower cost to the users of our products, I ask your candid consideration of this question: "Will contractor licensing tend to lower or increase costs to the customer?" As a matter of common sense, how can anything except a rise in costs result when the number of contractors is

The Licensing panel (left to right): Edelstein, Templin, F. R. Bolton (moderator), Henderson, Rehard, and Price.

cut down and competition is reduced?

(c) There are rumors in other industries to the effect that none but a contractor with a union agreement can get a license in some areas. What would be the chances of a non-union contractor getting a license in an area where the inspector is the secretary of the examining board and is also the business agent of the local union? The non-union contractor's chances under those conditions would be somewhat less than that of the proverbial snowball, in my opinion. Too, where the examining board is politically appointed, isn't it fairly logical to expect discrimination and partiality on a basis of personal considerations?

(d) There are reports, naturally unproved, from other industries, of the difficulty a "price-cutting" contractor has in obtaining or keeping a license.

SMACKS OF "COMBINE"

Contractor licensing legislation runs counter to America's economic and legislative policy and has elements of the European "combine" system. How "combines" inflict long-range damage on an economy through discouraging private initiative and ingenuity—and protecting the inefficient and incompetent—is vividly seen today in the industrial bankruptcy and socialization of much of Europe. The American system of free enterprise guarantees that, if a man develops a better product or a better service at a lower price, he gets the business and the profit.

Licensing legislation gives contractors a "protected" market and sets aside the laws of competition which govern our system of economy. Are there any benefits which outweigh the evils inherent in such a course?

WHAT PROPONENTS SAY

The proponents of contractor licensing justify their position by arguments and general statements which, while at first appearing impressive, lack proof and, therefore, conviction. For example:

(1) License Revocation for Violations

Proponents argue that control of contractors is necessary to assure that an installation is safe from an accident or health standpoint and that such control can be made effective only if the state or municipality has power to suspend or revoke contractor licenses.

There is a complete answer to that argument. In some states, it has been found that the courts are loath to support municipal and state officials attempting to withdraw a license and thus deprive a citizen of his accustomed means of livelihood. It has become generally recognized that, as between inspection laws or ordinances and contractor licensing laws or ordinances, the contractor licensing laws are far less likely to receive the support of the courts in case they are challenged by a contractor.

Inspection, particularly state or municipal inspection, can punish a contractor through refusing to approve his work, thus forcing him to remedy the defects of the installation at his own expense before the installation can be used. Such procedure does not deprive the contractor of his source of livelihood, even though it does injure his reputation with customers and give him a limited set-back he is not likely to forget. Fines or other punishment for violation of inspection laws and ordinances are another customary method of forcing contractors to obey the rules and regulations.

Photo by Irving Alter, Harry Alter Co.

Confident that the controversial nature of many of the subjects on their program would arouse spirited discussion from the floor as well as among members of the discussion panels, the contractors this year essayed a streamlined method of transcribing these discussions—via wire recorder. Ralph Lampie, NARC's sergeant-at-arms, operates the recorder while president Ed Wright speaks.

Further, injunction procedure can always be used against contractors who violate municipal or state inspection laws. This is a simple and inexpensive procedure, compared with the administrative costs of establishing boards to conduct state or municipal examinations and issue licenses.

In any case, in the course of time, the threat of suspension or revocation of licenses is very likely to lose all meaning, unless that procedure is used with absolute uniformity and fearlessness and without discrimination.

In brief, inspection laws can provide ample protection for the public interest, they are easier and less expensive to enforce, and they are not nearly so subject to abuse.

(2) Examination Assures Competency

Proponents argue that an examination before the granting of a license is needed in order to assure that only those who are competent will be permitted to engage in the contracting business.

EXAMS PROVE LITTLE

This argument is worthy of little weight. A man's competency to direct the installation of equipment cannot be conclusively, or even approximately, determined by an examination. The average contractor is years away from his school days. A written examination could be a nightmare to him, for often he has lost his facility for answering a written exmaination. An oral, or partially oral, examination could be easy to a glib but incompetent or dishonest contractor, and yet throw a perfectly-competent and honest contractor into tongue-tied confusion.

Competence and integrity are matters which can be measured only as a result of continued performance. Installations made by a contractor and inspected by municipal, state, or other inspectors, will soon determine whether or not a contractor is both competent and honest.

Aside from the inadequacy of the examination device, the argument that competency shall be tested by examination is weakened further by the fact that **its proponents are not interested in testing the competency of everyone.**

PROTECTS THOSE ALREADY IN

When contractor licensing ordinances or laws are adopted, it is common practice to issue licenses, without examination, to all contractors then in the business in the area. Perhaps in this practice we glimpse the real reasoning of some proponents of contractor licensing! Existing contractors are admitted to the charmed circle, irrespective of their competency. If it were not so arranged, there would be vigorous opposition to any proposed licensing bill or ordinance.

(3) As Necessary as Licensing Doctors

Proponents argue that the licensing of contractors is just as essential as the licensing of doctors, dentists, pharmacists, etc.

There are, of course, several an-

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Preparing Licensing Codes

By Nathan Edelstein
Refrigeration and Air Conditioning Guild
New York City

A LICENSING code is divided up into two sections: One is the safety code, and the other is the administrative section of the code. There has been a good deal of confusion in the minds of many people as to the actual intention of NARC with reference to the contractor-licensing program. I can say for the NARC that the thing that they're interested in is the administrative section of the licensing code *only*. I can say also for the NARC, that we believe that a safety code, such as the ASA b9 code, is the one which we can and do support in preference to all other safety codes, subject however to local law.

COMPETENCE IS AIM

We are, in the main, only interested in seeing that the contractor who installs the equipment is qualified, both from a technical engineering viewpoint and from a business financial viewpoint. We feel that if any contractor does a job which is not in consonance with good accepted practice and usage, he does not only hurt himself but he hurts everyone in the industry. It has been my experience that whenever a contractor has appeared in a law court, he has had two counts against him, not because he, the individual, is at fault, but because of the general reputation of the refrigeration contractor. It is for this reason that the NARC has advocated a licensing code for contractors. It is quite useless to provide a safety code wihout a licensing code to give the proper officials the opportunity to check on the operation of the safety code. It's just as improper to have a licensing code without a safety code.

FINANCIAL STATUS CHECKED

This code should provide that the license holder shall be a qualified technician, who will have passed a written examination, a practical examination and a character examination. We should also like to see that this contractor is financially capable of carrying out the terms of a contract, when he makes one, and to carry out the terms of his guarantee, when he gives one.

Since we are interested only in the administrative section of a contractor licensing code, we will now outline a method or methods of preparing a licensing code. First, we must determine the law of the locality where such a code is desired. The Constitution of the United States has given to the various states, authority over the health and welfare of the people of the state. Therefore, any sub-division of a state, such as a county, city, town, hamlet or village, is under the direct supervision of the state.

CITY-STATE CONFLICT

In some states, general permission for cities, to pass such licensing laws is granted by state constitutions. In many states however, the state reserves a right to itself to pass licensing laws. Sometimes, a city has been given authority to pass such licensing laws and subsequently due to the right reserved by the state, the state has passed a state licensing law which has then superseded the city licensing law. Such a case occurred in the state of California. In large cities, it is customary for the state to give the city a home-rule government; in other words, the city governs itself. Of course, we realize, too, that licensing refrigeration contractors comes under the police powers of the city and state. Some localities provide for licensing by the commissioner of safety, some by the police commissioner.

FOLLOW PREVIOUS PATTERNS

However, whichever official or city council has authority to promulgate such a licensing code, the first thing that an association or a group desiring a standard licensing code for refrigeration contractors should do is to go to see that official or that council or that legislative body and inquire about a licensing code similar to that of the refrigeration contractor. The reason for this is to write your licensing code in a similar manner and in a similar form as previous codes have been written in other fields of endeavor. Before beginning to write a licensing code, it would be quite a wise thing to provide the licensing code committee with a copy of codes of as many other cities and states that have licensing codes to use as guides. The committee should read all the codes thoroughly and the features that the particular locality requires should be incorporated in the new code.

The NARC has set up a standard licensing code, but we appreciate very well that the different cities and states of the U.S. would not and could not pass the same type of law that the standard code provides for, and so it is in a suggested form and used as an outline only. When the features and the various sections of the article have been determined, they should be set down and submitted to the members of the committee for their study and then an agreement should be reached as to the various sections to be incorporated in the code.

SEEK LEGAL COUNSEL

Once you have the thoughts and ideas you wish to have in the code, engage an attorney to help you set up the code in such technical form as will be acceptable to the City, State officials or the City or State Legislators when they go to consider the code for passing. When the code has been drawn up, copies should be mailed to each member of the association or to each member of the group interested in such code.

After final form has been agreed upon, sufficient support should be built up. By that I mean, a mere handful of men would find it very difficult to have any kind of law passed. It must have the general support of the entire industry before a law can successfully be passed. In the case of the Refrigeration contractor, it would seem wise to consult and confer with other segments of the industry, other associations, such as the ASRE, RSES, and the jobbers and manufacturers groups, if they are interested.

SELL THE IDEA FIRST

We have at all times maintained in NARC that we are not hiding the fact that we should like to see licensing a universal practice, and therefore we at all times publicize the fact to the whole industry. If you can convince all the segments of the industry, and we believe that you should, prior to the bill being presented to the proper officials or to the legislative body, the success of the licensing code is a foregone conclusion.

You must always remember that a licensing code should not be an elimination contest for purposes of eliminating competition. The licensing code should be one that will eliminate only the "know nothings" and the "do harmers," the "90-day wonders," those with no mechanical aptitude, and particularly those with no refrigeration mechanical aptitude. The

Continued on page 65

REFRIGERATION INDUSTRY *News*

COPELAND TO BUILD KELVINATOR UNITS

Harry E. Thompson, president of Copeland Refrigeration Corp., Sidney, Ohio, announces that an arrangement has been worked out with Kelvinator Div., Nash-Kelvinator Corp., for Copeland to manufacture Kelvinator open-type refrigeration condensing units.

These Kelvinator open-type condensing units will be built by Copeland in its Sidney factories in accordance with Kelvinator specifications, according to Thompson. Kelvinator's machine tool facilities and other equipment previously used in producing these open units at Detroit have been transferred to Copeland plants at Sidney, Thompson further revealed.

Shipments will be made to and through established Kelvinator distribution channels directly from Sidney. Orders for these units, and all Kelvinator commercial refrigeration merchandising activities, will continue to be handled in Detroit under the direction of H. C. Patterson, Kelvinator's commercial refrigeration sales manager, and his staff.

An interesting sidelight on this arrangement is the fact that George Mason, president and chairman of the board of Nash-Kelvinator Corp., was president of Copeland two decades ago.

DuPONT AMMONIA PRICE UPPED 1c

The Du Pont Co. has announced an increase of one cent a pound in the price of anhydrous ammonia in cylinders for all areas, except the Pacific Coast. The rise, it was said, is necessary because of the increases in rail freight rates. Ammonia is shipped to the Pacific Coast by steamship. The new price in Zone 1 is 17 cents a pound.

KOCH ADDS TO FACTORY SPACE

Koch Refrigeration Co., with headquarters at 14th and Gentry Streets, North Kansas City, Mo., has leased 20,000 sq. ft. in a new warehouse building just across the street for an expansion of its general operations.

Millard Mayer, president of the firm, announced that 4,000 sq. ft. of the newly acquired space will be utilized as a display room in which packing house machinery manufactured and distributed by the company will be shown. The remainder of the area will be used for the manufacture of refrigerators.

The new property will be known as plant No. 3. The expansion ultimately will include employment of about 50 additional workers, Mayer said.

USAIRCO OUTLINES DISTRIBUTION POLICY

Formal announcement of its distribution and merchandising policies for its line of refrigerated packaged air conditioning units has been made by the packaged air conditioning sales division of United States Air Conditioning Corp.

According to this announcement, the company is distributing its refrigerated store conditioners, window coolers, and room conditioners through major distributors or refrigeration and air conditioning jobbers exclusively. These outlets are being franchised on an exclusive basis pertaining to territories.

The company also announces that it is making available complete financing assistance to the dealers of the distributors or jobbers which it franchises.

One of the new Remington air conditioners for 1949 gets a thorough inspection from the sales staff of Remington Corp.'s air conditioning division at the company's Cortland, N. Y., headquarters. Grouped around the unit from left to right are: Moise Johnson, southeastern district manager; Herbert L. Laube, president; Jack White, service manager; Mark Watkins, vice president; Howard Peters, assistant sales manager; and William H. Moler, southwestern district manager. Johnson and Moler, who head Remington's two newly opened district offices, will make their headquarters in Philadelphia, Pa., and Dallas, Tex., respectively.

SUPREME COURT RULING UPHOLDS RECOLD PATENT

The litigation between York Corp. and Refrigeration Engineering, Inc., of Los Angeles, Calif. which has been pending in various courts for several years, is finally ended.

York's attempt to have the Supreme Court of the United States review and reverse the decision of the Ninth Circuit Court of Appeal upholding the validity of Recold's McAdam patent ended when the Supreme Court denied York's petition for writ of certiorari. The decision of the Ninth Circuit Court of Appeals upholding the validity and finding of infringement by York is thus final.

B. H. JENNINGS HEADS ASRE

Professor Burgess H. Jennings, chairman of the department of mechanical engineering, Northwestern University, was elected president of the American Society of Refrigerating Engineers during the 44th annual meeting of the Society at the Hotel Statler in Washington, D. C.

Professor Jennings, who makes his home in Evanston, has been chairman of the mechanical engineering department at Northwestern since 1940 and previously taught at Lehigh University. During the war he was connected with the Office of Research and Development of the U. S. Government and supervised work on glycol vapor which is now being used in ventilating systems to kill cold germs.

Professor Jennings is also president of Pi Tau Sigma, honorary mechanical engineering fraternity, and is a past chairman of the Chicago section of the American Society of Heating and Ventilating Engineers.

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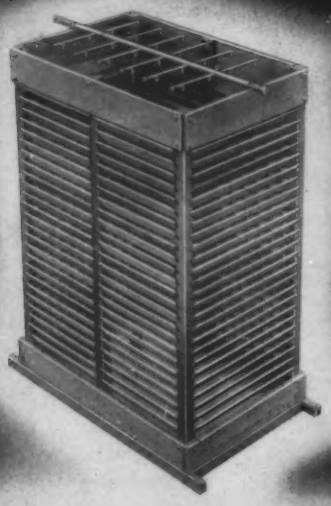

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WHOLESALER OPENS NEW STORE

The well lighted interior of the new store of Refrigeration Supply Co., Billings, Mont., wholesaling firm operated by Frank Pond of Minneapolis, Minn., shows to good advantage from the street. Note how the "island" units make effective use of display floor space.

Staff of the new store lines up at the service counter during opening ceremonies. Left to right are: N. L. Sulenes, manager of the store; Mrs. Sulenes (better known as "The Boss"); Frank Pond, Jr., in charge of shipping and receiving; Roy Howatt, salesman; Frank Pond, owner; Jerry Featherstone, credit and office manager.

HEUSER, LEGG NAMED TO ACRMA POSTS

G. A. Heuser, president of Henry Vogt Machine Co. has been elected treasurer of the Air Conditioning & Refrigerating Machinery Association, and Edward R. Legg, president of Refrigeration Corp. of America, has been elected to the Association's board of directors.

Heuser has been associated with Vogt throughout the major portion of its existence of nearly half a century. He assumed the presidency in 1937, following the death of the company's founder, Henry Vogt.

Legg, a longtime sales executive in the refrigeration industry, formerly was associated with Kelvinator and Jack & Heintz prior to taking over at Refrigeration Corp. of America last year. In addition to his new position with ACRMA, he continues as chairman of the group's newly formed ice cream cabinet section.

Vice president of the ice cream cabinet group is H. L. Schaefer, president of Schaefer, Inc. Legg and Schaefer, together with T. E. Hoye of Savage Arms Corp., constitute the product section's executive committee.

Member companies of the ice cream cabinet section, in addition to those represented by the three executive committee members, include: Ace Cabinet Corp.; Anheuser-Busch, Inc.; Frigidaire Div., General Motors Corp.; Nash-Kelvinator Corp.; and C. Nelson Mfg. Co.

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Two extra large diameter diaphragms — one of phosphor bronze, one of stainless steel—service life well over 100,000 complete cycles.

Connections sufficient distance above the base to allow standard flare nut wrenches to clear when valves are fastened to the wall.

Valve is non-directional—indicational arrow forged on valve merely indicates the preferred direction of flow.

The valve has no springs, the opening being effected by operating wheel and operating screw.

The seat disc is made of molded nylon—a material resistant to the action of all standard refrigerants. The insert, although strong enough to resist flow under sustained pressure, is soft enough to conform to any irregularity of the seat.

A resilient gasket is provided at the back seat, not only to form a seal when the valve is in full open position, but also to form a cushion which prevents seizing, even if back-seated with considerable force.

The pressure-retaining members—body and diaphragm—have ample safety factors for use with any of the commonly used refrigerants.

SELLING ROOM UNITS . . .

Continued from page 29

This means that the various other factors—freedom from dirt, noise, rain, drafts, and so on—must be brought out to the point where he believes that he could not get along without this device. even if he were living at the North Pole; otherwise your sales will be so dependent on the weather that you will have no uniform flow of business.

Furthermore, people who are sold on buying the unit just for cooling in a climate such as Chicago will think they have made a mistake the minute the weather begins to get cool and will find all sorts of things wrong with the unit.

As a part of this section, never allow anybody to simply call up on the phone and buy a unit from you, no matter if he can give you the exact model number he wants and tells you that he knows all about it. Send a salesman out and let him start from scratch as though the man had never heard of it at all.

These people who buy under their own steam always turn into trouble jobs later on because they really are not well sold. They are buying for one rather inadequate reason, and when that reason evaporates, they will be completely unsold again.

The salesman must follow his customers very closely. The customer needs to be told repeatedly what a smart move he has made in buying your unit.

Under the guise of telling him how to operate it, our salesmen go back after the installation is complete and again pour on him the story of what a wonderful machine he has. **The best selling is done after the order is received.** We find that most of our leads result from previous customers.

All salesmen must, of course, know how to estimate a room load. The form for doing that is extremely simple. They must also be able to measure a window accurately and put the measurements down on a simple form.

INSIST ON INSPECTION

Never allow any unit to go in where the salesman has not made a complete inspection, even if it would work. It would be bad psychology because the customer would figure the unit was not particularly selected to meet his needs.

Naturally, we do not install these jobs in places where they will be inadequate. We sympathize with the customer who wants to buy just a little cooling, but we advise him to go elsewhere for it. We know that he will never be satisfied no matter what he tells you at the time. For that reason, it is almost impossible to sell a line of room conditioners unless it contains several sizes and can really be measured to the job.

On a wholesale basis, we will not permit any dealer to do his own installing and servicing unless he is well equipped to do it. If he is a small operator just selling a few units a year, he is much better off to let us handle that end for him and pay us for it.

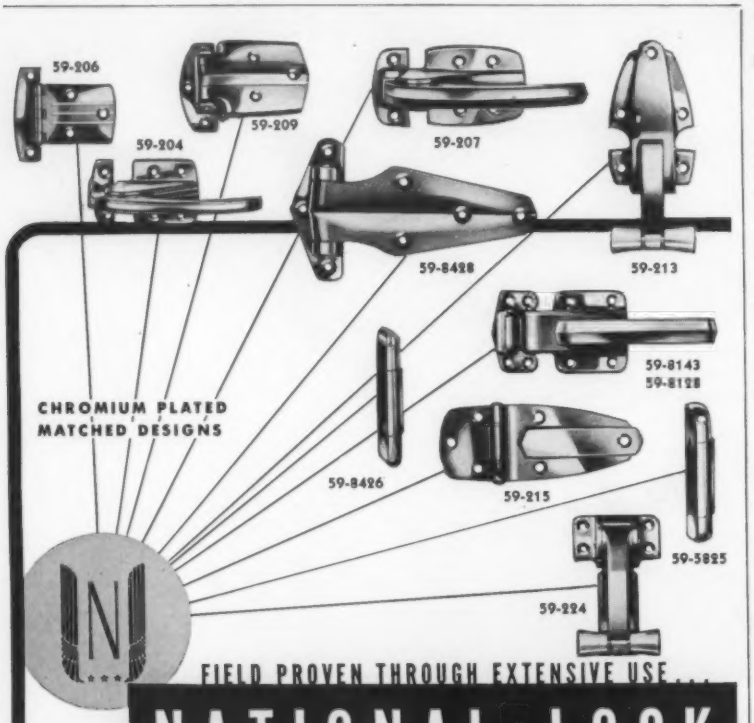
YOU NEEDN'T BE BIG

As a part of this section, therefore, it follows that if you are a small operator and never intend to be a big one, it is much better for you to tie on to the coat strings of some large distributor who is completely equipped to furnish you with all the services you cannot set up for yourself.

Lastly, I do not believe anybody ever makes any money just selling a few of anything. There is always considerable hidden expense getting ready to do something different.

My advice to dealers who have not yet gone into selling of room air conditioners would be to make up their minds on this problem: Do they want to be a big operator in this field and make it the most important end of their business, with a volume twice as great as any other department of their business?

If the answer is no, they'd probably better stay out of it.



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REFRIGERATOR HARDWARE DIVISION

LABOR COST CONTROL . . .

Continued from page 32

increase productive hours.

Sample No. 3 is a forceful method to point out to the service operator labor costs, and without its use the operator is often guessing at his actual labor costs. This particular sample portrays wage rates for three classifications of refrigeration mechanics.

The particular operation used in this sample sells its service labor at a rate of $4 per hour to the consumer. The hourly rate of a Class A commercial journeyman is $1.87½ per hour.

When you add to that labor rate the various taxes and insurance and workmen's compensation, plus 25c per hour transportation charge, and the 40% of total time which was not paid for by the consumer, $2.94 is indicated as the cost of labor and taxes before overhead. The overtime hours, of course, carry a higher rate, and when the same taxes and factors are applied, $4.92 is indicated as the cost. The transportation charge was arrived at by taking the total automobile expense from the operator's books and dividing it by the total number of hours as shown on the report marked Sample 2, resulting in an average of 25c per hour.

In this particular operation, men were worked for a 48-hour period. By taking 40 times the $3.38 rate, and 8 times the $4.92 rate, and dividing the total by 48, $3.64 is the service operator's net cost for Journeyman A labor. This is a rather high cost, and a $4 selling price is certainly a nominal figure with this cost.

It is interesting to note that a lower cost of $3.12 per hour is indicated under construction work, even though the base wage rate is considerably higher than that of a Class A journeyman. This is due to the fact that it is the practice in construction work to have a man report on the job at 8 o'clock in the morning and to bill the customer for the total hours of labor.

There is no reporting to the shop for materials or for calls, and the 60% billing factor does not apply in this instance. With a $2.37½ rate, a $3.12 cost is indicated. Also, overtime work is not performed on construction work unless it is billed as a separate item. The overtime cost as indicated by this breakdown is $5.95 per hour.

The three forms that have been illustrated are simple forms. They will serve you well. There are other forms which can give you substantially the same information.

In order to have any form of labor cost control, it is necessary to know the information that is provided in these reports. These reports can be prepared inexpensively and quickly by people within the service department. They can be compiled from the normal records that every service department must keep. They do not require any special bookkeeping.

"THE Small Business Man and His Financial Statements" is the title of a new pamphlet which has just been issued by the U. S. Department of Commerce.

This pamphlet is designed for proprietors of new businesses and for those directing small operating units. It aims to give some background information about accounting and bookkeeping procedures, and specific methods of analyzing business accounts and statements.

Disclaiming any intent to present a comprehensive discussion of business accounting practices, it instead aims to give sufficient information and suggestions to enable proprietors to cope with problems of business records and reports.

Copies of this pamphlet may be purchased at any field office of the Department of Commerce for 15 cents each.

"Penn Points"
WITH PRIDE TO THE RECORD
"Superior" Specifications
PURCHASING AGENTS
Specification Chart No. 349
DEAD SOFT
Uniformly annealed to high standards — makes installations easier.
EXTRA DRY
Moisture-meter zero—the tiniest bit of water is dangerous.
REALLY CLEAN
Must be free from grease, oxide and foreign matter.
SUPER BRIGHT
Smooth and shiny inside & out—defects are costly.
SEAMLESS
One piece copper tubing — controlled dimensions are important.
UNIFORM WALL
Secure from reliable source—quality saves rejects, improves products.
PROTECTED
Materials handling know-how eliminates dents & costly scrap.
EASY FLARING
Workable tube easy with flaring tools — Papco #400 recommended.
EASY
Quality tube needs quality cutter—Papco #500 recommended.
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SOURCE
Write today for the NEW Penn specification chart No. 349.
TUBING HAS TO BE GOOD TO BE 'SUPERIOR'
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Air Conditioned with

FRICK

Refrigeration

Three "New Eclipse" compressors provide 117 tons of refrigeration for air conditioning the restaurants of The Brass Rail, at 521 Fifth Avenue, New York. The installation, with its excellent results, is a credit to Armo Cooling and Ventilating Co., New York Distributors of Frick air conditioning equipment.

The Fifth Ave. Restaurant of The Brass Rail Chain

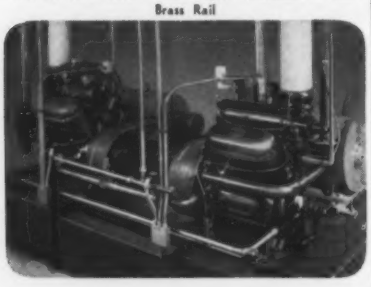
Frick "New Eclipse" compressors have back of them 66 years' experience in building dependable cooling equipment.

The Dining and Grille Rooms Seat 850 People

When you want dependable refrigerating, ice-making or air conditioning equipment, contact your nearest Frick Branch Office or Distributor; they're in principal cities everywhere; or write, wire, phone, or visit

FRICK CO.
DEPENDABLE REFRIGERATION SINCE 1862
WAYNESBORO, PENNA. U.S.A.

Two of Three Frick "New Eclipse" Machines at The Brass Rail



Useful LITERATURE

The publications listed below are available to readers without charge. Simply list on the postcard provided in this issue the key numbers of the items you wish to receive. Your requests will be forwarded directly to the companies concerned.

366—Reach-Ins . . . A complete line of porcelain clad reach-in refrigerators is displayed in this 16-page catalog. Both exterior and interior views of each model are shown, and complete specifications are listed. Actual installation photos also are featured. Available from Sherer-Gillett Co.

367—Cooler Doors . . . A 40-page catalog describing and illustrating a complete line of cold storage doors, including such special applications as keg and can passing and ice chutes. Special emphasis has been given to detail drawings of each type of door, providing architectural dimensions, required wall openings, and standard sizes available. Available from Butcher Boy Cold Storage Door Co.

368—Beer Dispenser . . . A two-color folder describing the "Koldaire" beer dispenser, and listing its features and specifications. Detail photographs of the dispensing faucet and the blower unit are included, along with a picture of the complete unit. Available from Albert H. Bromann, Jr., Inc.

369—Service Truck . . . A specification sheet illustrating and describing an all-purpose service truck body adaptable to refrigeration work. General dimensions and optional added equipment are listed, and detail drawings indicate possible variations in compartmentation. Available from McCabe-Powers Auto Body Co.

370—Table Top Refrigerator . . . A promotional folder describing and illustrating the "Glasco" 5-cu. ft. table top refrigerator. Photographs show dimensions and graphically illustrate the amount of food the unit will hold. Available from J. H. Rasmussen & Co.

371—Carbonator . . . A four-page bulletin illustrating and listing the features of the "Crystal-Flo LB" carbonator. A phantom photograph reveals the unit's principal operating features. Available from Amp Corp.

372—Hand Truck . . . A pocket-size folder illustrating and describing the features of the "Escort" line of hand trucks with roller bearing crawler tread for moving appliances on either level surfaces or up stairs. Available from Associated Services.

373—Combination Cooler . . . A catalog sheet illustrating and describing the "3-in-1" features of the Sunroc Model 26 water cooler which also provides ice cubes and refrigerated storage space for foods or bottled beverages. Complete specifications are listed and actual uses are pictured. Available from Sunroc Refrigeration Co.

QUIZ OF THE MONTH

How much do you know about water cooling problems? Here's a chance to score your knowledge. The Marley Co., manufacturer of cooling towers and spray nozzles, has prepared a series of question-and-answer type monthly mailing pieces entitled "What's Your Cooling Tower I.Q.?" The first of the series deals with water distribution, the second with air movement, etc. Although the subject is technical, presentation is informal and attractively illustrated. If you want to find out whether you're a genius or merely average in this department, send us your requests for this series.

374—Welding Products . . . A 12-page catalog (No. 7) illustrating and describing a complete line of electrode holders, ground clamps, cable and terminal connectors, cable splicers and lugs. Contains valuable information about the maintenance of these products. Available from Tweco Products Co.

375—Motors . . . A four-page catalog insert illustrating and listing construction details of a new line of single bearing, shaded pole, a.c. "MonoMotors" for low range power requirements. Avaliable from Redmond Co., Inc.

McCRAY APPOINTS NEW CHICAGO MANAGER

McCray Refrigerator Co., Kendallville, Ind., manufacturer of commercial refrigerators, has announced the appointment of H. George Entress as manager of the company's Chicago branch, 1046 Wilson Ave. Entress has operated as a refrigerator manufacturer's representative for the past 15 years in the Pittsburgh area.

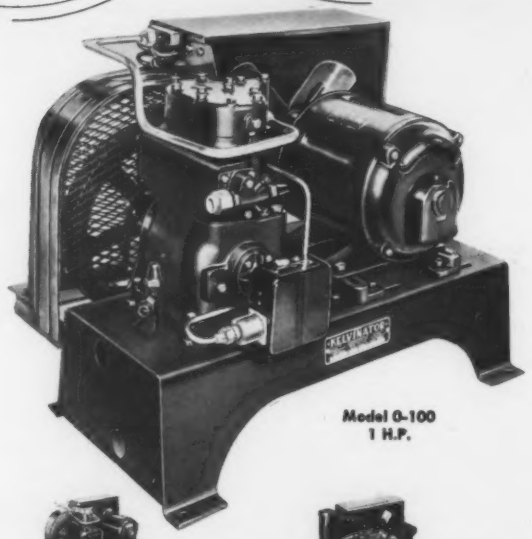
BUY FROM YOUR REFRIGERATION WHOLESALER

Get the big three working for you—
Get KELVINATOR!

You'll start off every installation in high gear when you choose Kelvinator condensing units for the job. They give you the all-important "big three." For they're priced *competitively* . . . they perform *dependably* . . . and they bear *a name that customers know means quality!*

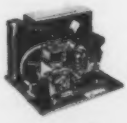
Kelvinator's range of five open type models . . . from ¼ to 1 horsepower . . . are precision-built, precision-tested to insure top-notch performance. Their dependability is known by refrigeration men the country over—just as the name Kelvinator itself spells the finest in refrigeration design and quality manufacture. It's the name that always *sells* . . . always *satisfies!*

Choose Kelvinator for your next new or replacement installation—and *know* you have the right condensing unit for the job. All models are available for immediate shipment. Just call your nearest Kelvinator Distributor or Zone Office. Kelvinator, Division of Nash-Kelvinator Corporation, Detroit, Michigan.

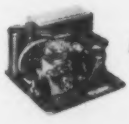


Model 0-100
1 H.P.

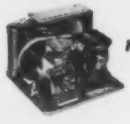
Model 0-75
¾ H.P.



Model 0-50
½ H.P.



Model 0-33
⅓ H.P.



Model 0-25
¼ H.P.

***Kelvinator*—of Course!**

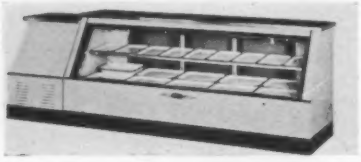
DEPEND ON KELVINATOR FOR ALL YOUR REFRIGERATION NEEDS

NEW Products

For further information on any of these products, simply list on the postcard provided in this issue the key numbers of the items in which you are interested. Your requests will be forwarded directly to the companies concerned.

Triple Duty Case • • • P-345

Product: 1949 "Sterling Junior" counter top display case for small retail stores.

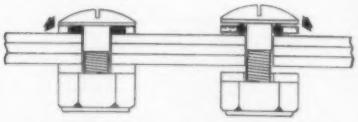


Manufacturer: Minneapolis Show Case & Fixture Co., Minneapolis, Minn.

Features: All porcelain case with triple "Thermopane" front, fluorescent lighting, and mar-proof top with polished metal trim. Made in 6 and 8-foot sizes, remote or self contained. Designed to meet the needs of small stores where floor space is at a premium. Sliding access doors are of triple-glazed hard rubber. Swinging doors are also available if desired.

Sealing Washer • • • • P-346

Product: "Lock-O-Seal" washers for use around screws, bolts, rivets, tubing, electrical wires, etc. to provide an effective seal against gas, air, and liquid leaks.



Manufacturer: Franklin C. Wolfe Co., Beverly Hills, Calif.

Features: Essentially a small doughnut-shaped ring of sealing material encircled by a washer-like retainer. Under compression, the rubber-like sealing material is prevented from being compressed beyond its elastic limit by the metal retainer, and thus it remains active and alive. Will not deteriorate. Have a locking as well as a sealing action, and may be re-used.

Two-Temperature Unit • P-347

Product: Model 1302 13-cu. ft., two-door, two temperature combination freezer-refrigerator.

Manufacturer: Howard Refrigerator Co., Hatboro, Pa.

Features: Top section consists of 3-cu. ft. frozen food locker with enough trays to freeze 10 pounds of ice cubes. Lower section is 10-cu. ft. normal temperature refrigerator.

Draught Beer Cooler • • P-348

Product: Heavy duty draught beer cooler designed to cool three brands of beer, plus one plain water and one soda water.

Manufacturer: Temprite Products Corp., Detroit, Mich.

Features: Intended for applications where beer kegs are located in warm rooms or basements and where no precooler is provided. Designed to cool a minimum of 48 gallons of 40 F beer per hour from a 70 F inlet temperature, thus providing in excess of 12 glasses of 40 F beer per minute. Operates on Temprite-patented instantaneous cooling principle, with beer coils submerged in liquid refrigerant, resulting in unusually high capacity in relation to unit size. Equipped with flexible, non-porous "Koroseal" connecting tubes, correctly sized for maximum flow efficiency. Measures 22⅞ inches high and 8 inches in diameter overall.

Coolant Cooler • • • • P-349

Product: Model 50-AC coolant cooler for grinding, honing, and machining operations.

Manufacturer: Frostrode Products, Hazel Park, Mich.

Features: Capacity of 5 gallons per minute. Designed to continuously maintain coolant temperature at a maximum of 20 degrees below room temperature at rated capacity. Completely self contained, completely wired, and ready for connection to all types of machine tools. No water connections necessary. Straight passages used for uninterrupted flow of coolant through cooler at high efficiency. Minimum floor space required. Unit insulated for high thermal efficiency. Able to handle all conventional coolants and requires no attention by machine operator, due to incorporation of hermetically sealed thermostat with integral controls. Thermostats on standard model are adjustable to maintain any desired temperature between 20 degrees below and 10 degrees above room temperature. Powered by ½-hp motor and hermetically sealed compressor unit.

Truck Unit • • • • P-350

Product: Model R high capacity refrigerating unit for trucks.

Manufacturer: U. S. Thermo

Control Co., Minneapolis, Minn.

Features: Cooler consists of a one-piece, 900-pound unit which is mounted in an aperture in the top front of the trailer. Eliminates necessity for pre-cooling, and functions at peak efficiency in either high or low temperatures. Permits loading of produce directly in field or grove, if desired, keeping it constantly at desired temperature until it reaches its destination. Functions independently and without relation to outside temperature. Operates entirely automatically, once desired temperature has been set and starter switch thrown. Constructed chiefly of aluminum. Completely independent of tractor, it has its own gasoline engine. Both engine and 6-cylinder compressor are readily serviceable.

Electric Sprayer • • • • P-351

Product: VS-500 "Vibro-Sprayer" electric sprayer for spraying lacquer, gloss enamel, and other liquids.

Manufacturer: Burgess Battery

Co., Handicraft Div., Lake Zurich, Ill.

Features: Self-contained unit weighing 1¾ pounds and operating without the aid of a compressor or other extra equipment. Entire operating mechanism, including pressure source, is encased within the molded housing. Serves admirably as portable utility sprayer in factories and maintenance shops.

Humidifier • • • • P-352

Product: "Junior Walton" humidifier for handling medium-sized areas.

Manufacturer: Abbeon Supply Co., New York City.

Features: Designed to service areas ranging from 2500 cu. ft. to areas of industrial size. Requires no steam, pumps, compressors, or return lines. Completely noiseless in operation. Vapor is emitted in form of fog which is finer than cigarette smoke. Vaporizing capacity, slightly over ½ gallon per hour. Can be connected to any water line. Automatic control can be supplied that will turn unit on and off at any desired relative humidity. Can be hung from ceiling or placed on shelf or table. Contructed entirely of non-ferrous metals.

Lathe • • • • P-353

Product: New 13-inch swing lathe with increased spindle capacity.

Manufacturer: South Bend Lathe Works, South Bend, Ind.

Features: New model with 13-inch swing and 1-inch collet capacity. Improved spindle design takes collet with maximum capacity of 1 inch. Bar stock up to 1⅜ inches in diame-

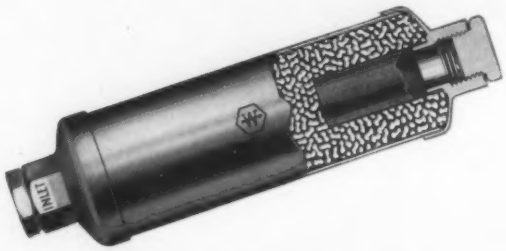
BUY FROM YOUR REFRIGERATION WHOLESALER

"Sealing with Certainty"
with
ROTARY SEAL
THE ORIGINAL, TIME TESTED, PRECISION BUILT REPLACEMENT UNITS
FOR COMMERCIAL, SEMI-COMMERCIAL, AIR CONDITIONING AND HOUSEHOLD REFRIGERATION COMPRESSORS
STOP
SAFETY FIRST
KNOWN THE WORLD OVER FOR THEIR SIMPLICITY IN CONSTRUCTION, INSTALLATION AND OPERATION
Available for over 848 models as shown on our stock list and carried by all leading jobbers.
THE ROTARY SEAL COMPANY
mechanical seals for rotating shafts
2020 NORTH LARRABEE ST. • CHICAGO, 14, ILLINOIS, U.S.A.
CANADIAN AGENT: 2025 ADDINGTON AVENUE • MONTREAL, 28, QUEBEC, CANADA

New-Improved

WEATHERHEAD DEHYDRATORS

IN COPPER
OR STEEL



RECHARGEABLE SILICA GEL DRYER AND FILTER

Write today for your copy of The Weatherhead 1949 Refrigeration Catalog

Look for the "Great Artisans" series of Advertisements by Weatherhead appearing in TIME and NEWSWEEK.

Now in copper or steel, the Weatherhead newly designed line of Dehydrators with enlarged screen areas give greater flow with minimum pressure drop. Available in sizes from ⅛ H.P. up to and including 5 H.P. Can be used on various line sizes by assembling with standard ¼" or ⅜" male pipe to either S. A. E. or O. D. S. connectors. Master service Dehydrators, in steel only, now available from 5 H.P. up to and including 20 H.P.

Weatherhead

The Weatherhead Company, Cleveland 8, Ohio
Plants: Cleveland, O. — Angola, Ind. — Columbia City, Ind. — St. Thomas, Ontario, Can.

ter may be fed through this spindle into a universal chuck. New tailstock base with improved bed way wiper system, and new one-point oiling system for reverse lever bracket and twin gear bearings. Unusually wide range of spindle speeds. Precision belt tension adjustment.

Ivory Window Cooler • • P-354

Product: ½ and ¾-hp window type room air conditioners now available in ivory finish.

Manufacturer: Fedders - Quigan Corp., Buffalo, N. Y.

Features: Baked ivory enamel finish introduced to meet requirements of interior decorators and users who prefer a unit that will blend with a light, rather than dark, motif. Available in ½ and ¾-hp sizes, these units are identical mechanically with the standard model finished in bronze and burl walnut. They are rated at 5500 and 8000 Btu respectively, under standard ASRE conditions. Ivory enamel finish is resistant to both alcohol and cigarette burns.

Centrifugal Switch • • • P-355

Product: Patented centrifugal device, the "Pres-On Switch," to replace both governor and contactor on all makes and models of split-phase and capacitor motors up to ¾ hp.

Manufacturer: Complete Reading Electric Co., Inc., Chicago, Ill.

Features: Self-contained unit presses on to motor shaft, taking up no more space than average governor. Installation is quick and easy. Fully tested from standpoint of economy, long life, and quiet operation.

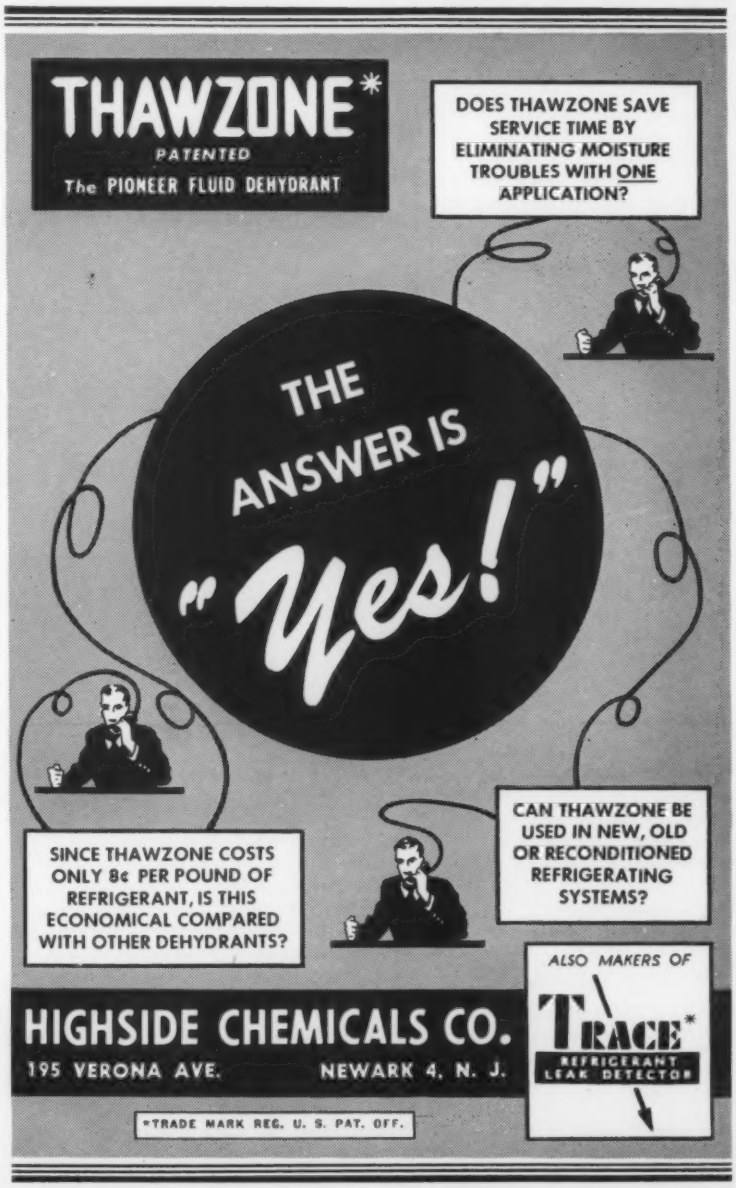
Hermetic Motor • • • • P-356

Product: Small diameter motor designed to drive hermetically sealed refrigeration compressors.

Manufacturer: General Electric Co., Fractional Horsepower Motor Division, Schenectady, N. Y.

Features: Compact design makes possible a diameter of only 4.790-4.792 inches. Available in ratings up to ⅛-hp, 1725 rpm, 115 volts, 60 cycles. Motor can be furnished with a rotor having a counterbored quill or with punchings made to fit directly over the shaft. Designed to aid compressor manufacturers in adjusting the size of their units to fit refrigerator space limitations.

BUY FROM YOUR REFRIGERATION WHOLESALER


THAWZONE*
PATENTED
The PIONEER FLUID DEHYDRANT
DOES THAWZONE SAVE SERVICE TIME BY ELIMINATING MOISTURE TROUBLES WITH ONE APPLICATION?
THE ANSWER IS "Yes!"
SINCE THAWZONE COSTS ONLY 8¢ PER POUND OF REFRIGERANT, IS THIS ECONOMICAL COMPARED WITH OTHER DEHYDRANTS?
CAN THAWZONE BE USED IN NEW, OLD OR RECONDITIONED REFRIGERATING SYSTEMS?
HIGHSIDE CHEMICALS CO.
195 VERONA AVE. NEWARK 4, N. J.
ALSO MAKERS OF
TRACE*
REFRIGERANT LEAK DETECTOR
*TRADE MARK REG. U. S. PAT. OFF.

COOLING CONSTRUCTION . . .

Continued from page 30

average figures can be established to cover all but a few very unusual installations. This will permit the setting of a firm installed price covering the bare air conditioner in any customer's premises.

Armed with this price, merchandising salesmen are trained to sell the merits, performance, construction features and appearance of the unit and obtain a signed order covering only the basic air conditioner and its installation.

The customer is advised that auxiliary constructions are required to fully serve his areas, and that their organization maintains a staff of highly qualified and experienced engineers who will personally study this phase of his job and submit a complete installation design for his approval.

He is further assured that their organization can handle the complete sub-contracting of this auxiliary construction at their actual cost plus a nominal percentage for overhead, and will assume complete responsibility for the performance of the overall installation.

It is also explained to him that if he prefers to deal with a sheet metal contractor, plumber, or electrician with whom he is personally acquainted, the selling organization will then furnish complete installation drawings plus a construction superintendent at a flat charge per hour.

I have seen this approach used successfully in two metropolitan and one suburban community, and it is producing increased sales as contrasted with the straight sales-engineering approach these organizations formerly used. One firm employs five merchandising salesmen who sell the complete line of package products in addition to air conditioning construction, and they have been able to keep two office engineers loaded with work.

Frankly, this approach is not successful on all sales, and this firm at times reverts to a complete engineering job before quotation, but only in cases where the size or scope of the project, combined with their chances to obtain the business, warrants the engineering expense involved.

Where the merchandising sale of the self-contained unit is successful, it obviously has secured the buyer's signed commitment before investing engineering time and personnel required for detailed job measurements, further calculations and installation drawings. It further assures a standard profit on the major portion of the sale and a known percentage on the auxiliary constructions without the risk of the usual construction cost contingencies.

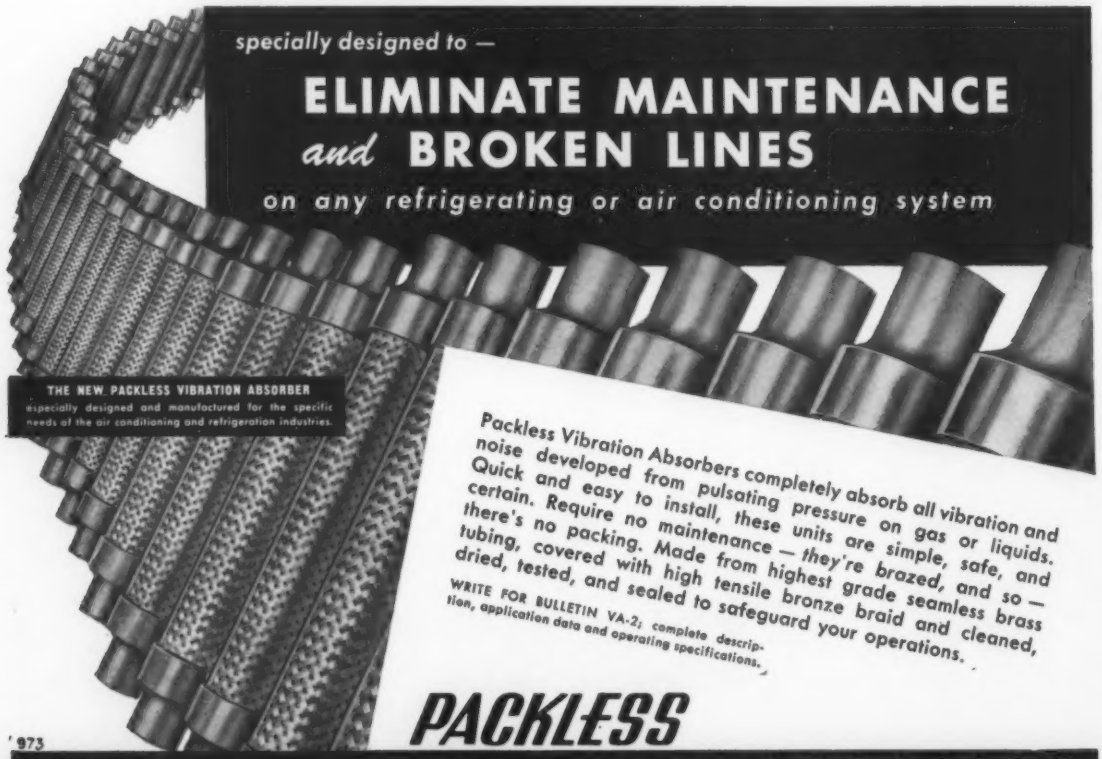
In my opinion, this is a new approach to air conditioning sales in the 5 to 20-ton field, in that it applies merchandising sales methods to the basic equipment sale and properly treats auxiliary constructions as an individual job engineering problem.

"REFRIGERATION of Lemons and Grapefruit" is the title of the latest brochure published by The American Society of Refrigerating Engineers.

The 10-page pamphlet, known as AD-18 R describes handling methods, coloring process, storage methods, air conditioning equipment, diseases, air distribution, etc. for lemons and grapefruit.

A completely revised edition of a similar manual published in 1940, this new brochure was written by H. M. Hendrickson and J. R. MacRill. Hendrickson is chief engineer for the Ralph E. Manns Co. in Los Angeles and Mr. MacRill is with the California Fruit Exchange in the field service and research department.

Copies may be obtained from ASRE headquarters, 40 West 40 St., New York 18, N.Y., for 50c each.


specially designed to —
ELIMINATE MAINTENANCE
and BROKEN LINES
on any refrigerating or air conditioning system
THE NEW PACKLESS VIBRATION ABSORBER
especially designed and manufactured for the specific needs of the air conditioning and refrigeration industries.
Packless Vibration Absorbers completely absorb all vibration and noise developed from pulsating pressure on gas or liquids. Quick and easy to install, these units are simple, safe, and certain. Require no maintenance — they're brazed, and so — there's no packing. Made from highest grade seamless brass tubing, covered with high tensile bronze braid and cleaned, dried, tested, and sealed to safeguard your operations.
WRITE FOR BULLETIN VA-2; complete description, application data and operating specifications.
PACKLESS
'973
METAL PRODUCTS CORPORATION
NEW ROCHELLE, NEW YORK

SELLING COMMERCIAL . . .

Continued from page 28

about making the sale, it is a matter of take it or leave it. The salesman enjoying a good sales volume when business is good does not become too discouraged because of the loss of a sale.

When conditions are slow, however, and the prospect—at least outwardly—is not too much concerned about making the purchase, conditions reverse themselves, and the pressure is on both the salesman and the dealer. The higher the pressure, the better the deal for the prospect, and the result is a bad deal for the salesman and the dealer.

Therefore, again it becomes the dealer's responsibility to be able to properly appraise trade-in equipment and determine whether it is worthy of reconditioning or whether it is just a pile of junk and should be scrapped.

If the equipment is junk, then the allowance plus the handling results in a discount on the sale, and both salesman and dealer are penalized.

If the equipment is worthy of reconditioning, then the trade-in allowance—plus all handling and reconditioning and re-selling expense—must be given careful consideration, because those combined costs determine the selling cost.

"Well, Jerkley, I see you've been out on another tavern call."

A dealer must also exercise caution in selling trade-in equipment. The purchaser of the trade-in equipment is always a potential buyer of additional new equipment. Trade-in equipment must be sold and if the dealer goes overboard and makes a commitment whereby his obligations parallel those in making a new sale, especially insofar as warranties are concerned, he may dissipate a percentage of estimated profits that will eventually result in over conservatism insofar as future trade-ins are concerned. Nevertheless, he must definitely accept trade-ins as part of the fixture business and, through experience, learn to safeguard himself against the pitfalls.

The days of putting the order on a spindle and waiting for its turn to come up are over. It is time to dust the cobwebs off the brief cases, the sales tools, and the sales know-how used during pre-war days.

It's time to forget the easy sales and the dangerous philosophy of "find 'em, fool 'em, and forget 'em." It's time, instead, to remember and practice the salesmen's creed of "seek them, sell them, and serve them."

Serving them after you sell them is the most important. It is much easier to retain a customer than it is to regain a customer.

Only 7 lbs. pressure provides FINE, UNIFORM BREAK-UP AND DISTRIBUTION OF FLUID

with Binks ROTOJET clog-proof spray nozzles

Absence of internal vanes and obstructions permits maximum spraying efficiency at extremely low pressures with Binks Rotojet Spray Nozzles. Designed on the off-center inlet, whirl chamber principle for greatest spraying effectiveness. Sizes up to ¾" pipe connection are of two-piece construction, precision-machined from finest quality brass bar stock, stainless steel or any special alloy that is machinable from bar stock. Sizes from 1" to 2½" have strong cast one-piece bodies. Wide capacity range.

Send today for technical bulletin describing Binks ROTOJET Nozzles

Bulletins give full information on sizes and capacities of the following Binks Rotojet Nozzles:
Bulletin Numbers:
10. Small and Medium Capacity Nozzles
11. Nozzles for Brine Spray Operation
12. Large Capacity Nozzles
13. Nozzles for Spray Ponds
14. Nozzles for Metal Cleaning Operations.

Please state how nozzles will be used, giving installation capacity.

THERE'S A BINKS SPRAY NOZZLE FOR EVERY SPRAY JOB

Binks MANUFACTURING COMPANY

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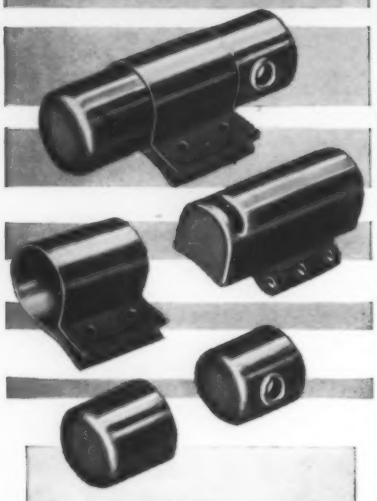
NEAT JOB . . .
MORE PROFIT!

MOTOR CAPACITOR HARDWARE



● Be right electrically! Use Aerovox exact-duplicate or universal motor-capacitor replacements. And the Aerovox Capacitor Selector indicates correct capacitance, when in doubt.

● Be right mechanically! Aerovox motor-capacitor housings, end caps, mounting brackets, do the trick. Minimum stock—maximum variety.

● Yes sir, it's that "good as new" repair that spells satisfied customers, higher prices, more profits, bigger business.

Ask Our Distributor . . .

● Order assortment of Aerovox motor-capacitor hardware NOW. Keep exact-duplicate capacitor stock for those quick-as-a-flash repair jobs. Ask for catalog — or write us.

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UNITS—WHOLESALER . . .

Continued from page 36

Unless the installer provides ample reserves for this service, he is apt to find himseld holding a "hot potato." Naturally he wants to pass it on, and the wholesaler is standing closest.

I believe the solution to this problem can only be attained by an entirely new conception of warranties on assembled commercial refrigeration systems.

To be specific, I suggest that a sealed time-recording device be placed on the condensing unit motor. The warranty should then provide for 1,000 hours or 90 days of satisfactory operation, whichever comes first, with a guarantee of at least 500 hours on intermittently used systems. This is both reasonable and equitable.

In the meantime, we have to live with our present problems. Contractors and wholesalers should be considerate of each other. We each can remember a few cardinal points:

THE CONTRACTOR:

1. Should provide adequate reserves for the risks undertaken which are not actually and fairly covered by your supplier.

2. Should be sure the system has been checked and properly installed before leaving it.

3. Should not ask for unfair adjustments.

4. Should make only reasonable guarantees that are equally fair to himself and the user.

5. Should not expect some supplier to bail him out of his bad jobs.

6. Should inspect all shipments for damages before signing his freight bills and present damage claims to the carrier and not the supplier.

THE WHOLESALER:

1. Should not sell to customers who lack sufficient experience to properly install and care for the operation of the equipment purchased.

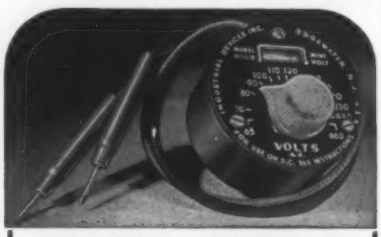
2. Should make proper adjustments promptly.

3. Should carry adequate repair parts to protect his customers' interests.

4. Should not give ill-considered advice.

5. Should not give flat application recommendations unless he is prepared to back them if they turn out sour.

Both the contractor and the wholesaler are necessary cogs in the industry machine. Even though this machine is working satisfactorily, there is no reason why it cannot be improved by constantly trying to fit the cogs closer together.



MINI-VOLT

Instantly read voltages right off dial. 65 to 660 v. A.C. Also D.C. Virtually burnout-proof. Lamp guaranteed for 10,000 hours. Plastic case. 12" flexible test leads. ***And only $2.75 list!***

● Not only distinguishes between 110, 220 etc. volts, but measures line voltage close enough to show up 3 or 4 volt drop between meter and load terminals on 110 v. line.

● No refrigeration serviceman need now be without definite knowledge of whether faulty operation of motors, magnetic valves, etc. is due to improper terminal voltage.

● Checks for blown fuses, accidental grounds, circuit continuity. Useful for electrical trouble-shooting in general.

● Not subject to error of "false indication" common to neon test lamps.

It's a "must." Saves time, money, life and limb! Order from supplier, or from

INDUSTRIAL DEVICES, INC., EDGEWATER 11, N.J.

UNITS—MANUFACTURER . . .

Continued from page 35

warranty beyond the first year and a flat fee of five or ten dollars has been added to the manufacturers' invoice price to cover this service. All of our customers furnishing extended warranty on their products, fall in the category of those who carry their own warranty beyond the first year.

This is a mere statement of fact. There can be no controversy. The two theories of warranties are in existence and each theory has its own proponents. It is our purpose now to analyze these two divergent ideas.

At the outset, let us get one point perfectly clear. Any warranty must ultimately become an item of cost to the user. The bookkeeping of handling warranties is not important.

Prime manufacturers, like ourselves, tend to add a scheduled or flat fee to the factory cost which is set up as a warranty reserve. Many manufacturers, and particularly appliance manufacturers, tend to add the warranty as an additional item added to the selling price and passed on to the user.

In either case the amount, which is collected with the original sale, is set up in a warranty reserve account and is a direct charge in the final selling price.

Somebody has to pay for every

penny expended for in-warranty service. The question is, then, how much service is necessary and what do we have to charge for that service?

On our units, compressors and systems, the one year warranty reserve set up in our factory is very nominal, only about 5% to 10% of the amount usually charged for five year warranty on a domestic refrigerator, for example. We have broken even on this small warranty reserve over a period of years.

How is this possible? Naturally, the experience must have been good. In-warranty returns are well under 1% from the field. But of greater importance is the fact that no paper work is required other than the issuance of a factory service order.

The date of manufacture is obtained from the serial number. If the unit is in warranty, a unit built to new equipment standards is sent as a replacement and carries a new unit warranty. If out of warranty, the appropriate charges are made. Such a system reduces warranty replacement to its bare fundamentals.

Now compare such a system of handling service with, say, a five year warranty in which the warranty runs from date of installation. Here elaborate card records must be kept on each individual installation.

Such warranty procedures, in large companies, require a separate costly department with a staff of bookkeepers, order clerks, file clerks, etc., and become a major item of cost. That is why such extended warranties cost ten to twenty times the amount which we require to operate our service.

Again, ultimately the customer pays. Is it worth it?

Back in the twenties or even early thirties, the refrigeration business was in a parallel position to the early automotive industry. Some companies still make better refrigerators and refrigerating units than others, but all standard makes have a high degree of consumer acceptance. Personally, I doubt that extended warranties are the prime selling point in selling any refrigerating equipment today.

VALVES—MANUFACTURER . .

Continued from page 35

Let's examine our own industry. It would appear that a rule of thumb may be applied to refrigeration equipment guarantees: "The closer the guarantor is in the sales chain to the ultimate consumer, the more liberal the guarantee". We have seen this develop in the domestic field and more recently in the unitary commercial field.

We, as accessory manufacturers, have refused to match our guarantee to that of the end product because we could see no end to the chain.

Product failure is a very real cost of doing business and should be treated as such. We know that in the building of expansion valves a given number will, after assembly and seasoning, show at the final test to have lost their charge. The cost of reworking these valves is included in our ultimate selling price.

The same applies to a contractor. He, from his cost records, knows the average cost per job of warranty service and this cost must be a part of the price he bids to get the job.

We are familiar with the procedure followed in bidding a job by a very successful contractor. Included in his bid are the following charges over and above the actual cost of material, labor and profit: For each TX valve, $6; for each solenoid valve, pressure or temperature control, $9; for each blower coil, $12.

These amounts are set up as a reserve for one year and the installation is hence service free for that period. This same contractor guarantees parts sold over his counter for 90 days. This, to me, adds up to a very intelligent approach to the contractors guarantee problem.

To summarize our specific thinking, we feel the automotive terms of guarantee approach the ultimate where mechanical equipment is involved. Under these terms the buyer is insured of initial satisfactory performance of the product, but future maintenance is the customer's responsibility as the necessity arises.

FOR QUIET PERFORMANCE

on your next job choose a

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a condensing unit for every installation

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LOCKRATOR offers

A complete new line of LOCKRATOR 1949 refrigerators—two new deluxe freezer-refrigerator combinations in 9 and 13 cu. ft. A new 8 ft. standard deluxe—volume seller. A low priced 4 ft. apartment model. Two models of the famous LOCKRATOR freezers in a 4 and 13.5 cu. ft. Sold only under LOCKRATOR trademark through legitimate dealers and distributors. Write for details—some territory still open.

Model 4E—4 cu. ft. Apartment size Refrigerator.

Model 8E—8 cu. ft. Standard Deluxe Refrigerator.

Model 9E—9 cu. ft. Deluxe Refrigerator-Freezer Combination.

Model 13E—13 cu. ft. Deluxe Refrigerator-Freezer combination.

Model 4D—4 cu. ft. Kitchen Freezer.

Model 13.5D—13½ cu. ft. Farm and Home Upright Freezer.

Model 41C—21 Tray, 42⅝ 1/6 or ⅓ H.P. Ice Cube Maker.

Stoddard

MANUFACTURING COMPANY, INC.

617 4TH ST. S.W. MASON CITY, IOWA

GUARANTEES—CONTRACTOR

Continued from page 38

found that it was simpler to buy the next larger piece of equipment and thus be sure of the correct size.

One of the most irritating and profit-wasting items that the contractor has to contend with is repairing new equipment as soon as it is uncrated, at the contractor's expense. And, to add insult to injury, freight charges necessary to replace the defective parts which have never been in operation also must be assumed by the contractor.

So that the accessories manufacturers, by which I mean driers, sight glasses, water valves, expansion valves, controls etc., don't feel that I am slighting them, let's take but a moment to give them consideration.

CONTRACTOR STANDS COST

The contractors, as a majority, are pretty good men and are quite fair in settling problems. The accessory manufacturers have gotten away with murder in the past when they have just replaced their little defective part and made the contractor stand the total cost of refrigerant, labor, etc., when jobs were in warranty.

When a manufacturer's part becomes defective a few times, that is one thing; but when you replace the part two, three, and four times on the same job, I take the stand that the manufacturer should pay all costs, including refrigerant and labor. For manufacturers to assume that the contractor should stand the brunt of the expense incurred due to their negligence is unthinkable.

In conclusion, I would like to mention that the ideal warranty from my personal viewpoint—one that some contractors groups already have in use—extends the manufacturer's warranty directly to the purchaser, with the contractor giving a 90-day warranty to the customer. This warranty provides for all labor performed during regular working hours to be given free, with the customer to be billed for the difference between day rate and overtime rate for work done after regular hours, Saturdays, Sundays and holidays.

INVENTORY CONTROL . . .

Continued from page 34

show minimum and maximum stock levels, source of supply, records of all receipts and issues, balance on hand, record of back orders, and record of purchases.

The form that a parts inventory control system may take will differ depending upon the size of the organization and other considerations which are known best only to yourselves.

Assuming that some of you might

have 5000 different items in stock, I would estimate that the cost of initially setting up stock records on that number of items would run about $500 to $600. This estimate covers only the actual cost of stock cards plus the personnel costs incidental to typing the catalogue number and description on the cards.

The job of developing inventory control in any particular business can be broken down into two very simple steps:

(1) Working out the procedures which will give the required result with a minimum of paper work.

(2) The selection and education of the personnel who would operate the controls so that they use these mechanisms intelligently and exercise judgment where judgment is required.

The second step I would like to emphasize as being of major importance, as no procedure, however carefully designed, will function automatically under practical operating conditions. Your system and your control is only going to be as good as the person you have running it.

In case you should decide to install a parts inventory control system which employs the use of stock records of some form, I can outline for you very briefly the steps which I think you should take.

(1) Take a complete physical inventory, involving the proper identification of all parts and a complete and accurate count.

(2) Establish your stock record cards.

(3) Prepare a means of reporting to the personnel responsible for the maintenance of the perpetual inventory record a record of all receipts and of all issues.

(4) Establish minimum and maximum stock levels based on, let us say, three months experience. These stock levels should be set by some responsible person and should be reviewed periodically, perhaps every six months.

(5) Arrange for cycle inventories to maintain the accuracy of your records.

(6) Select the merchandise which you will stock. The selection of items that are to be stocked is an executive responsibility and should not be delegated to a clerk.

SELLING SERVICE PARTS . . .

Continued from page 40

ing the customer a new motor two weeks later.

Therefore, by replacing the expansion valve instead of adjusting it; by exchanging or installing a reoperated motor instead of installing a new set of brushes; by exchanging the compressor when the valve plate is leaking or the seal is leaking, especially on a job that has been in service for two or three years or longer—by doing these things on the first service call you create better customer relationship and render much more economical service to the customer.

The third reason that I see for merchandising parts is the profit to the service organization.

Although I do not think that any business should be in business for the profit only, yet a profit is necessary to continue to remain in business. By exchanging a complete compressor body on a unit that is two or three years old where a leaking seal or a leaking valve plate has been found, the net profit is greater to the service organization than if just the seal or valve plate are changed on the job.

Remember that with today's wages for the servicemen it is a lot cheaper to replace the part on the first service call than it is to make two service calls and then replace the part on the third trip anyway.

FLORIDA DEALER MOVES

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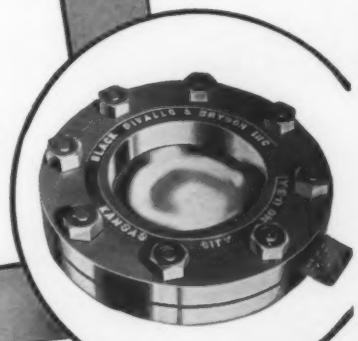
PREVENT OVER-PRESSURE TROUBLE

in your refrigeration units



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BS&B SAFETY HEADS

Protect receivers and copper tubing from rupture. Save compressors from destructive over-pressure. SAFETY HEADS offer that positive margin of safety that prevents such accidents. Eliminate costly equipment losses . . . save on costly shut-downs. The simple rupture disc of the SAFETY HEAD absorbs the shock of over-pressure . . . bursts in tension at pre-set pressure.

SAFETY HEADS provide a full-throated, pipe-sized escape point. Fractured discs are easily, quickly replaced. Tamper-proof, fool proof SAFETY HEADS offer you guaranteed performance. A wide selection of types assures you of tailor-made protection. Write today for complete details. Address Special Products Division, Black, Sivalls & Bryson, Inc., Power and Light Building, Kansas City 6, Mo.

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LICENSING EXPERIENCE . . .

Continued from page 41

duce the rate of expansion by new companies.

Such limitations to new entrants into the contracting business have been referred to by some as "industry birth control."

(2). Licensing has been used to prohibit business enterprises from performing certain functions which may be considered as falling within the scope of activity of other groups.

Refrigeration contracting involves electrical work and plumbing work. As restrictions are imposed through licensing regulations and plumbers an delectricians may be required to complete refrigeration installations, the cost of installation of refrigeration equipment is obviously increased without justification.

(3). Licensing laws are also used by contractors of a particular locality to keep the local market for themselves by excluding contractors from other localities. The effect of this, of course, is the erection of barriers around municipalities and states. As barriers are erected around one municipality, similar barriers are erected around adjacent communities in retaliation.

(4). Licensing laws may sometimes be used as convenient devices with which to limit the extent of competition.

Success in contracting requires conformity to ethical standards of conduct. Those who do not adhere to such a standard of conduct in their business will be eliminated from the field by dissatisfied customers through the natural laws of competition. There is no way of determining a man's integrity through examination.

(5). Two reasons are generally advanced for the necessity for licensing—safety to the public, and a guarantee to the public of a good quality of work. Safety to the public can best be assured by a well constituted inspection authority, where the work of all contractors is inspected in accordance with the established standards for safety. Licensing cannot guaranty that installations will be made in accordance with established standards.

As to quality, why attempt to protect the public through licensing for contracting work any more than to attempt to protect the public in any other occupation where quality varies and buyers are sometimes dissatisfied? The performance of any individual contractor will soon establish his position in the community and will determine to a large extent the amount of work the public will accord him.

REWA members offer you

7. Stockrooms containing hundreds of items and maintained at a large investment.
8. Adequate, up to the minute displays of merchandise which can be inspected at any time.
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10. Sound, intelligent engineering advice which is always available when needed.
11. A business reputation backed by a n organization of 13 years' operation according to approved business policies.
12. Every assistance to enable you to expand your business through prompt, efficient service.

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REFRIGERATION EQUIPMENT WHOLESALERS ASSOCIATION

H. S. McCloud, Executive Secretary
920 East McMillan St., Cincinnati 6, Ohio

PREPARING CODES . . .

Continued from page 46

code should not contain a high licensing fee provision. It should only provide for a licensing fee that will pay for the operation of the department giving the examinations for the license. The code should provide for inspection of the installation, as well as the examination of the contractor. The code should provide teeth so that a violation of any of the rules and regulations will be promptly and fittingly punished.

ATTEND ALL HEARINGS

When the bill is ready for public hearing, as is the usual case, organize your committee and your association and make sure that a representative group is down at that public hearing, to give support to the passage of the code. If you are interested in seeing that this law is passed, and that a licensing code is promulgated in your city or state, see to it that active support is given to its passage. Do not come up with the excuse that you're too busy, that you have an important engagement, and besides there will be plenty of others there, so that you're not needed. In our opinion, you would save yourself a lot of trouble and headache, in the future, if you see to it that this contractors licensing code is passed.

HELP THE LAWMAKERS

When this bill is sent to a legislative body, it is necessary that one of the members of the legislature shall introduce the measure. A constituent should approach one of the members of the legislature and if he (the legislator) is convinced of the advantage of passing such a licensing code, he will introduce the measure in the legislature. It is wise, therefore, to follow the bill from its introduction to the general committee. It is wise to contact the chairman or the clerk of the committee, so that you may appear before them to testify. If there is a public hearing for the committee, be sure that you have a representative group there. In many instances, the chairman of that committee will be very pleased to have some assistance in determining the value of the bill, as to whether it should be reported out or not. If the bill is reported out successfully to the general body, if there is a public hearing, be sure that members of your committee and of your organization are there.

Once the bill has become law, all efforts should be made to obey the various regulations and sections of the law. What occurs is that the bill that is reported out and actually passed is not the same as was reported in to the committee and introduced by the legislator. Be that as it may, if the bill is somewhere in the right direction, carry along with the verbatim dictates of that law, and then, after seeing how it works out in practice, begin to study the amendments and corrections that should be made to the licensing code and proceed as if a new bill were to be passed. But first give the old bill a fair chance.

THIEVES who didn't mind a little lifting recently stole five air conditioning units, weighing about 350 pounds each, from A-1 Appliances in Miami, Fla. The units, valued at a total of $1000, had been stored outside the building.

THE CASE AGAINST . . .

Continued from page 45

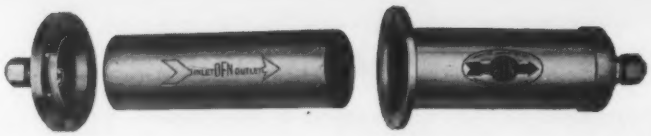
swers to that argument. It is clear that the opportunities for abuse by unscrupulous and incompetent professional persons is much greater than in any other field of human activity. From the very nature of their work, involving as it does a high degree of confidence by those who seek their services, professional men are in a position to do untold harm if they are not properly qualified.

In contrast, the work of contractors is completed and can be in-

DFN DOES IT AGAIN!

NEW LINE OF DEHYDRATORS

scientifically designed to secure full value of DUCAL DRIERITE



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- No guesswork—each size DFN Ducal Dehydrator clearly rated as to moisture adsorbing capacity.
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spected and the quality of the installation, from a safety, fire, or health standpoint, determined before the installation is put into use. In the latter case, an adequate inspection system can insure all necessary protection to the public. There is, therefore, a marked contrast between the licensing of professional people, especially in the field of health, and the licensing of business men, such as contractors, whose work can be inspected before the results are used.

Another underlying object of contract licensing is to eliminate "carpetbaggers"—that is, contractors from other states or municipalities—from doing business in the area issuing the license. Carried to its extreme conclusion, licensing would require contractors who do business on a national scale to take out licenses in every municipality or state where licensing obtains.

There are other means of obtaining the advantages claimed for contractor licensing—means which are simpler and less expensive to the muncipality or state and which provide more revenue. They are simpler and less expensive to the contractors and their customers, also. They are less discriminatory as between contractors of different sizes. These means are entirely adequate from the point of view of safety, fire prevention, and health. I have in mind

(a) Inspection of installations by municipal, state, fire insurance, or other inspectors.

(b) Education of contractors and the public on fire prevention, safety, and health—a normal function of such inspectors.

(c) Fining of contractors for violation of inspection laws.

(d) Where necessary, use of the injunction procedure against contractors who violate an inspection ordinance or law.

REASONS FOR OPPOSING

I am opposed to contractor licensing in the air conditioning and refrigeration industry because

(a) Licensing of contractors tends to limit free and competitive enterprise and create barriers to interstate and intercommunity commerce. This would be true even if licensing were capable of being perfectly administered—which it is not.

(b) Inherent in contractor licensing is the opportunity for abuses such as the limiting of competition by excessive fees, through unreasonable requirements, and through administration by examining boards and enforcement agencies which may be less than impartial. This is a very real danger.

(c) Contractor licensing opens the door to illegal practices by existing contractors in the form of agreements and understandings or concerted action to fix prices, divide territories, and otherwise control the market for their services.

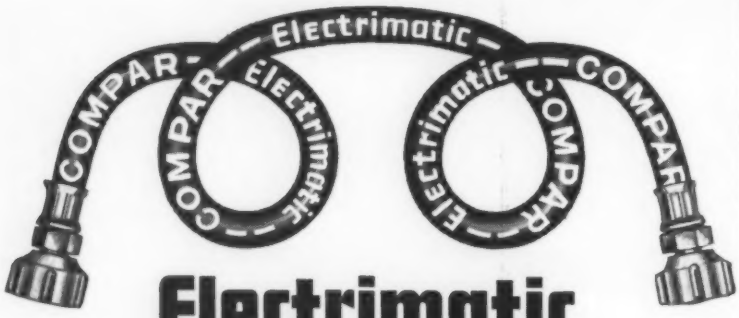
IT INCREASES COSTS

(d) Licensing charges must be reflected in higher over-all costs of air conditioning and refrigeration installations to the buyer, without any assurances of quality of equipment, proper installation, and safe operation of air conditioning and refrigeration installations.

(e) Contractor licensing will be, as it has been in other businesses, a retarding influence on the growth and progress of our industry, through limiting the competitive spur to render better service at lower prices.

(f) There are alternatives to contractor licensing which are more effective and subject to less abuse. A system of installation permits and inspection, well-conceived and impartially administered, is much to be preferred to contractor licensing from all viewpoints—that of the public, the municipal and state authorities, *and the industry as a whole.*

BUY FROM YOUR REFRIGERATION WHOLESALER



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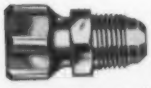

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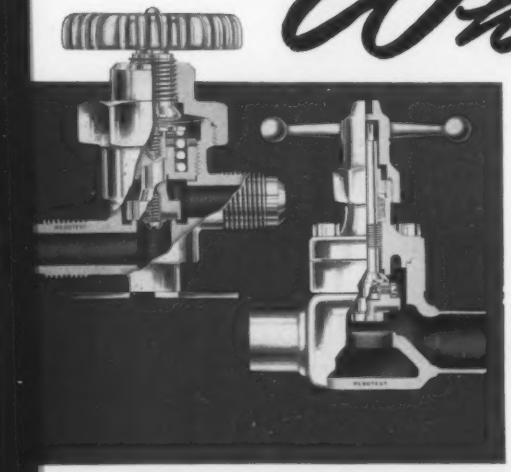

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SBURGH 22, PA. Branch Offices: NEW YORK...CHICAGO...HOUSTON...LOS ANGELES

ABOUT People

Fred B. Merritt has been named manager of the new packaged air conditioning sales division of United States Air Conditioning Corp., Minneapolis, which recently announced acquisition of the Great National Air Conditioning Corp. with factories at Dallas and Corsicana, Tex. Merritt comes to usAIRco from Yates-American Machine Co.'s General Refrigeration Division, where he was district sales manager. Prior to that, he was for 10 years with Norge and Kelvinator, where he worked with dealers and distributors on sales and application engineering.

●

J. R. (Jack) Cameron, who has been in the appliance business since 1922, has returned to Norge Div., Borg-Warner Corp., as assistant to Harry L. Spencer, director of manufacturing. Cameron first joined Norge in 1927 and returns to the company after having spent the last four years as manufacturer's agent handling industrial products in the Detroit area. When he left Norge in December, 1944, he was manager of national service on all products, having held this position from 1933.

●

E. S. Sensenderfer has been named advertising manager of Bonney Forge & Tool Works, Allentown, Pa., manufacturer of tools for the refrigeration industry and other fields.

Harding M. Smith of Seattle, Wash., has been named Pacific Coast representative for Refrigeration Corp. of America. Smith served for a number of years with the Joe Lowe Corp. in Los Angeles, and more recently represented the Benjamin Holland Mfg. Co. of Seattle.

●

John B. Edwards has been appointed to head the sales department of the refrigeration equipment division of Schnacke, Inc. Formerly of Beloit, Wis., Edwards was for many years sales manager of the Lipman Division of Yates-American Machine Co.

Edwards

T. J. Thomas, who formerly headed Schnacke sales, remains with the company, establishing himself in a southwestern territory with headquarters in Texas.

●

R. F. Callaway, manager of the Detroit branch of Frigidaire Sales Corp., has retired after 26 years continuous service with the Frigidaire organization. He has been succeeded by **J. H. Moloney,** formerly assistant Detroit branch manager. Callaway began his Frigidaire career as Detroit branch manager in 1922. In 1927 he was transferred to Dayton as assistant to the president and the next year was appointed sales manager in charge of all branch operations. He returned to Detroit as branch manager in 1933.

Moloney joined Frigidaire as a branch engineer in 1926. He was appointed general sales manager of the Detroit branch in 1945 and assistant manager in May, 1948.

●

Harold F. Smiddy has been elected a vice-president of General Electric Co. He continues as general manager of both the company's air conditioning and chemical departments. A former partner in the firm of Booz, Allen, & Hamilton, industrial management consultants, Smiddy joined G-E last March as a member of the president's staff.

●

Claude M. Lamb has been appointed to the new position of sales manager, industrial V-belt division and assistant to vice president in charge of mechanical sales of Dayton Rubber Co. Lamb has been in the employ of the company for the past 10 years. He was a field representative in the New England territory from 1938 until 1945, when he was made sales manager of the New York district office. **R. S. Gove** has been named to succeed Lamb as New York district sales manager. Gove has been a field representative in the New England territory for the past six years.

Lamb

Gove

●

R. E. Deaux has been named chief engineer of Coolerator Co., Duluth. He has had more than 20 years' experience in the electric refrigeration field, beginning with Westinghouse as a field test engineer and later becoming head of the testing laboratory. For the past several years Deaux has been with Gibson Refrigeration Co., as head of the engineering laboratory, process and specifications engineer, and assistant chief engineer.

Bernard M. Packtor has been named representative for McQuay, Inc., Minneapolis, in the New England states and part of New York state on refrigeration equipment, and in western Massachusetts, Rhode Island, Vermont and part of Connecticut on heating and air conditioning products. Packtor for the past two years has been a manufacturers' representative and engineer. **C. L. Neill** has been appointed McQuay representative for Nebraska and the southwest corner of Iowa on heating and air conditioning products. The firm name is Neill Equipment Co., 424 Electric Bldg., Omaha. **R. I. Fruth** and **O. L. Phillips,** operating as Phillips-Fruth Co., 538 N. Erie St., Toledo, have been named McQuay representatives in the Toledo area on heating and air conditioning products.

Packtor

●

Sidney A. Whitt has been elected vice president of engineering for Cordley & Hayes, New York water cooler manufacturer. Whitt has been director of engineering for the company for the past four years. In his new position, Whitt will direct all development, design, and application engineering for water cooling and other allied fields.

●

James C. Tweedell has joined the New York headquarters staff of the international division of Carrier Corp. Long engaged in the international field of air conditioning and refrigeration, Tweedell was head of the international division of York Corp. from 1935 until his resignation in July, 1948. He was acting sales manager of York from 1942 through 1945.

●

W. F. (Walt) Siddall has joined the staff of Joseph Simons Co., Hartford, Conn. refrigeration wholesaler, as a sales engineer. He has been in the refrigeration supply field for a number of years in the New England and Middle Atlantic area.

Louis J. Randall, for the past 12 years general manager and service manager, of General Refrigerators Corp., New York City, has been promoted to the vice presidency. Randall has also assumed full control of the operations and sales policies of the company.

●

Paul H. Dow has been appointed sales manager of Temperature Equipment Corp., Chrysler Airtemp distributor in Cleveland. Dow comes to his new post from Bryant Heater Co., also of Cleveland, where he served as sales promotion manager for the past two years. Previously, he had spent five years as sales promotion manager and director of sales training for the Chrysler Airtemp organization in Dayton.

●

C. E. Scott has announced his resignation as vice president and director of sales of Rittling Corp., Buffalo, N. Y.

It costs no more to buy a top Compressor brand

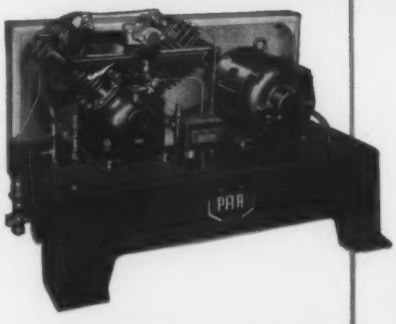
PAR

When the customer says: "I want top refrigeration efficiency—and don't spend all my money on it"—that's your cue to install PAR.

PAR compressors are not only engineered with most of the recent refrigeration improvements and give maximum B.T.U. output per dollar but popular pricing means everyone can afford a top brand.

Whether your problem happens to be a cold box, storage room, freezer or an air conditioning system, there's a correct size PAR unit, air or water cooled, standard or heavy duty, to accomplish the job.

For the complete story about PAR's top compressor efficiency, see your nearest Dealer and ask for an illustrated folder showing all of the PAR line.



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PAR AIR COMPRESSORS · PAR REFRIGERATION COMPRESSORS · WRAP-O-MATIC CANDY & COOKIE WRAPPING MACHINES

LYNCH CORPORATION
PAR COMPRESSOR DIVISION
TOLEDO, OHIO

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Sensational New Way to Reoperate Valve Plates & Pistons

PREMIER Self-Aligning Valve Grinding Kit makes it possible to save up to 90% in time and money by reoperating your own valve plates and pistons FAST! . . . in the shop or on the job.

Yes, this amazingly low-priced kit, compactly packed in handy case, makes it easy for any refrigeration service man to grind, finish and test recessed or flush valve seats in little more time than it takes to read this ad! No more tiresome hand lapping. Pays for itself in reoperating as few as six valve plates!

Send TODAY for FREE Literature and Name of Nearest Jobber.

THE PREMIER COMPANY
891 Park Ave., Baltimore 1, Md.
Send Literature on PREMIER KIT.
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Address.....
City..... State.....

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891 PARK AVENUE • BALTIMORE 1, MD.

greater resiliency

Jarrow...

Refrigerator Door Gaskets Are Again Made From Crude Rubber

Always Demand These Quality Gaskets

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Rates: for "Positions Wanted", $3.50 minimum, limit 25 words. For all other classifications, $4.00 minimum for 25 words, each additional word 15c; boldface type or all capitals, $7.50 minimum for 25 words, each additional word 20c; limit 50 words. Box addresses count as five words.

POSITIONS WANTED

Selected group of men, graduates of well-known trade school, desire employment in Refrigeration Field. Will travel anywhere. Qualified in domestic and commercial refrigeration. Reliable. Contact Placement Dept., Eastern Technical School, 888 Purchase Street, New Bedford, Mass.

TOOL SERVICE

COLDSPOT INFORMATION: NOW YOU CAN SUCCESSFULLY REBUILD COLDSPOT UNITS. Complete information covering repairing, rebuilding compressors, refacing seals, charging, do's and don'ts, best methods, and a score of other helpful hints. A list of complete parts at wholesale prices. A list of special tools that will save you many dollars, as well as time. Sent FREE to Servicemen and Jobbers. PRECISION-BUILT TOOL AND PARTS COMPANY, 4530 Gravois Avenue, St. Louis 16, Missouri.

FOR SALE

16 cubic ft. freezer cabinets, 4 cubic ft. domestic refrigerators. Rathbun Refrigeration Company, 325 Scribner Avenue, N. W. Grand Rapids 4, Michigan.

FOR SALE

Stop Terminal Leaks in Crosley Sealed Units by using the Jiffy Terminal. Easy to install, no special tools needed, can be installed in a few minutes without removing unit from cabinet. Set of three terminals. $4.00 or see your jobber. Detroit-Sealed-in Parts Co., 19191 Rogge, Detroit 12, Mich.

FOR SALE—Air-cooled and Water-cooled remanufactured condensing units, ¼ up to 2 H.P. Write for particulars, Edison Cooling Corp., 310 East 149 St., Bronx 51, N. Y.

"FOR SALE—Dispatch Electric Oven, style 25, 220 volt, 7 Kw., Type ELFC, 1 phase, 32 amp., 240°, serial 8234, 84" wide, 48" high, 39" deep, in good working order. Price 250.00 f.o.b. Spokane. Jensen-Byrd Company, 320 Riverside Ave., Spokane, Washington."

A. J. WEATHERHEAD GETS CERTIFICATE OF MERIT

Albert J. Weatherhead, Jr., president of Weatherhead Co., has been awarded the President of the United States' Certificate of Merit. The award was made on behalf of the President by Stuart W. Symington, Secretary of Air Commerce.

MAGIC IN A SMALL BOTTLE

FREEZE-UPS ELIMINATED *RIGHT AWAY!*

ICE-X quickly cures emergency freeze ups when ice forms at the expansion valve or capillary tube. Harmless to use. Great for Freon, Carrene, or Methyl Chloride systems . . . The dependable liquid anti-freeze.

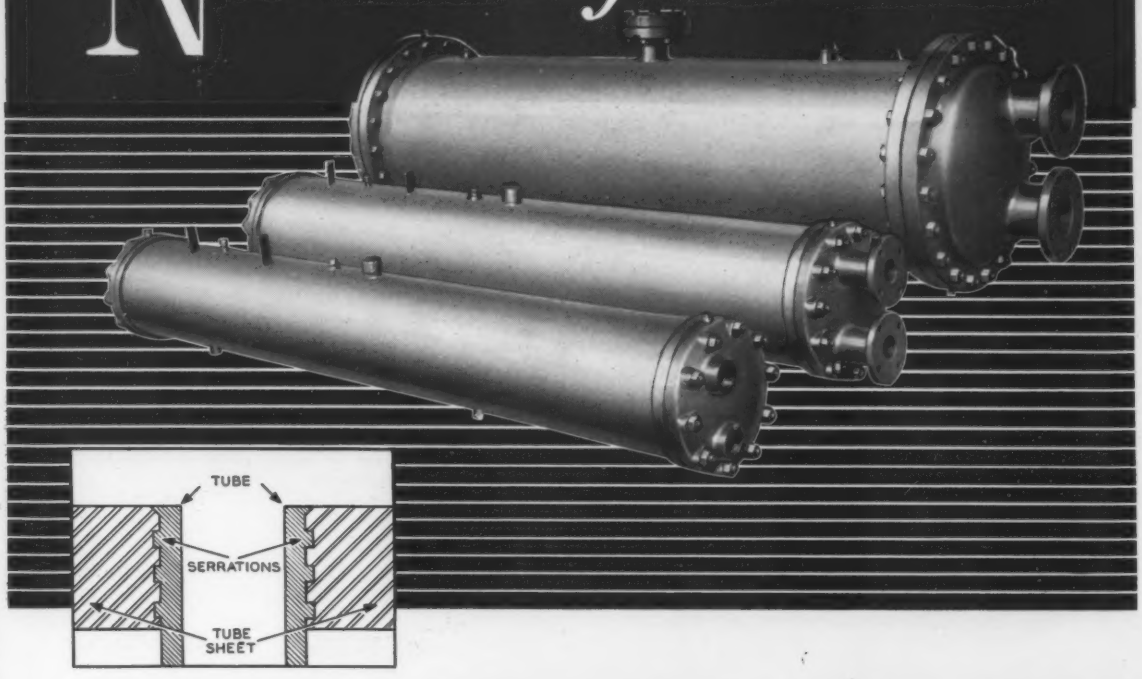
"ONE SERVICE MAN TELLS ANOTHER - IT'S GREAT"

ORDER FROM YOUR JOBBER OR—

EXCLUSIVE NATIONAL DISTRIBUTOR
THE HARRY ALTER CO. 1728 S. MICHIGAN AVE. CHICAGO 16, ILLINOIS

JOBBERS: WRITE FOR SPECIAL PROPOSITION!

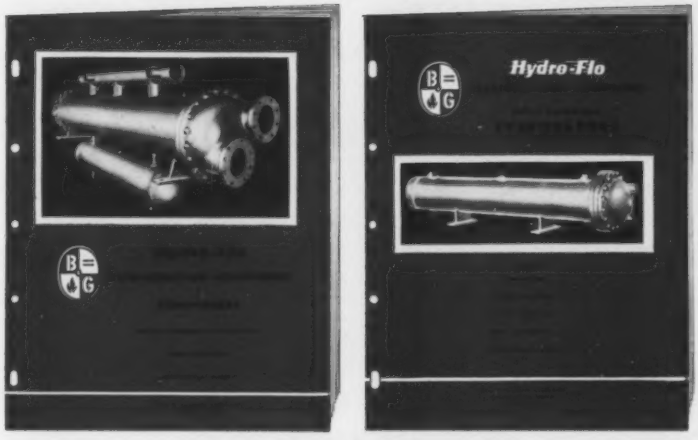
New Ideas by Old Hands



●Yes, sir, there *is* something new under the sun! Here's radically improved construction in refrigeration equipment—by old hands in the business who have spent over a quarter century in learning the tricks of better heat transfer.

You'll be interested in a close-up of B & G Condensers and Evaporators—in seeing why these units lick trouble before it begins. The method of serrating tube sheets, for example, which assures leakproof operation.

Better designing, painstaking workmanship, excellent materials—all contribute to over-all performance which more than satisfies the most critical engineers and operating men.



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B & G Refrigeration Equipment is fully described in these two catalogs. Complete engineering data is given, together with simplified selection procedures. Send for your copies today.

Hydro-Flo* **REFRIGERATION EQUIPMENT**

BELL & GOSSETT COMPANY

Dept. AW-45, Morton Grove, Ill.

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Because Texaco Capella Oils keep refrigerating compressors clean and efficient

WHEN a service engineer puts the recommended grade of *Texaco Capella Oil* into a refrigerating compressor, he knows that the compressor will give long, trouble-free service . . . that his customer will be completely satisfied. This builds up *his* reputation and, at the same time, benefits distributors and dealers alike.

Texaco Capella Oils assure peak compressor efficiency because they are stable, moisture-free, non-reactive with refrigerants. They have very low pour tests and very high resistance to gumming and sludging, assuring clean compressors and coils, minimum operating costs.

Leading compressor manufacturers approve the use of *Texaco Capella Oils,* and you can get them, in all needed viscosities, in 1-qt., 1-gal. and 5-gal. sealed cans.

Whether you're a distributor, dealer or service engineer, you'll do *more* business with *Texaco Capella Oils.* The Texas Company, 135 East 42nd Street, New York 17, N. Y.

FREE LUBRICATION GUIDE—Latest edition lists makes and types of compressors, and refrigerants used in 64 Electric Refrigerating units and 39 Air Conditioning Units. Shows recommended grade of *Texaco Capella Oil* for each. Use guide as wall chart, or bind into service manual.

TEXACO Capella Oils

FOR ALL AIR CONDITIONING AND REFRIGERATING EQUIPMENT

TEXACO

Tune in...TEXACO STAR THEATRE presents MILTON BERLE every Wednesday night. METROPOLITAN OPERA broadcasts every Saturday afternoon.

THE PRACTICAL Refrigeration Applications MANUAL... by Harold Smith

THE Practical Refrigeration Applications Manual, which will appear in this space each month as the successor to The Practical Refrigeration Engineering Manual, is intended to answer the needs of those refrigeration and air conditioning men who may from time to time encounter field engineering problems too tough for them to handle. We urge all such readers to submit these problems to us. Each letter of inquiry will be answered personally by the author of this series, who will give the writer the benefit of his long and varied experience by providing an analysis of each problem submitted and by offering his recommendations for its solution. Those problems which appear to have the widest reader interest will be published in these columns from month to month. All questions or problems should be clearly and completely stated, with all facts, figures, and additional information needed for an adequate analysis of the situation. Address your problems to: The Refrigeration Industry, Manual Dept., 1240 Ontario St., Cleveland 13, Ohio.

PROBLEM

"WILL you please give us a plan for a locker plant using a room 15 feet wide x 30 feet long x 9 feet high. These are all outside measurements.

"The customer wants to use a space about 4 feet x 12 feet for butter storage and the balance of the space is to be used for a quick freeze room and lockers.

"The entrance door is 3 feet wide and is located 12 feet from the back end.

"The walls are constructed of 2 x 6 studding covered inside and out with 1-inch boards. Ceiling is constructed of 2 x 8 joists with 1-inch boards underneath.

"A quick freeze room of sufficient size for the number of lockers the room will accommodate is desired. All other rooms will be outside of the above room.

"How many lockers, part drawer and part door type, can be used? What capacity of air cooled compressor and coils will be needed? What kind and thickness of insulation should be used?"

SOLUTION

IN regard to the insulation of the building, as you have stated that the walls are 2 x 6 studding covered inside and out with 1-inch boards, we would suggest that you pack "Palco Wool" insulation or some similar type insulation between the 2 x 6 studdings in the walls. There are many standard insulation materials that can be used for this purpose. A material that can be packed between the studding will be relatively easy for you to install and will do a very successful job so long as it is packed well.

On the ceiling, more of this same type of insulation should be used between the 2 x 8 joists, or you might prefer to use two layers of 2-inch cork board for the ceiling. This should be dipped in hot asphalt before laying against the ceiling so that you will have a definite moisture bond and control.

The floor should have at least 6 inches of insulation and the type you would wish to use would depend somewhat upon the final top floor construction. If it is your plan to use a concrete floor it may be well to lay on the floor two layers of 3-inch cork board dipped in hot asphalt, with the joints lapped, and then apply a 1½ or 2-inch concrete floor on top.

If it is your plan to use wooden flooring, you can use the same type of insulation as is suggested for the side walls and ceiling.

Based on the use of insulation as suggested, we have arrived at the following refrigeration loads for the entire room, which has outside dimensions of 30 x 15 x 9 feet. We have estimated a total heat leak of 7268 Btu per hour, a service load of 4272 Btu per hour, and a product load and safety factor of approximately 1150 Btu per hour, making the total 12,690 Btu per hour on a 24-hour basis.

16,000 BTU NEEDED

Converting this to an 18-hour condensing unit operating period, this would show a requirement for a condensing unit with a capacity of approximately 16,000 Btu per hour, based on an 18-hour maximum operation.

The locker room should be operated at a temperature of at least –10F and the refrigerant gas should be at least –20F, giving you a 10-degree t.d. between the refrigerant gas temperature and room temperature.

We are under the impression that you wish to partition the freezer room, and if such is the case we would recommend that you erect your partition with 2 x 4 studding, insulating between the studding with the same type of insulation as has been suggested for the main building.

The freezer room, to be efficient, should be operated at a temperature of at least –20F. The condensing unit for this job should operate at a gas temperature of at least –30F, again giving you a 10-degree t.d.

COOLING LOAD ESTIMATED

Based on an estimated average of 500 pounds of food a day, and allowing for this food to be placed in the freezer at a starting temperature of 70F and to be frozen to a temperature of –10F we arrive at an estimated refrigeration load as follows: heat leak and service load, 800 Btu; products load, operating the freezer on a 12-hour period, 1470 Btu; total, 2270 Btu.

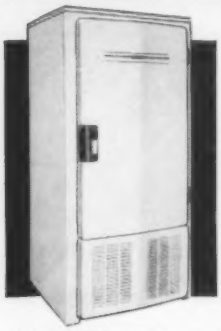
Placing this on an 18-hour condensing unit operation the requirements would be approximately 3100 Btu. The refrigerant temperature should be –30F, again allowing a 10-degree t.d.

We would suggest that you use in the main locker room at least five banks of plate coils, with probably six plates to each bank, each plate measuring 12 x 144 inches. These

Custom-built for the Trailer Industry

...SANITARY'S

NEW FULL LINE SERVES ANY HOUSING REQUIREMENT



MODEL TE62

Width, 23½", depth, on body, 20"; depth, over hardware, 23¾"; height, 50½". Net food storage, 6 cu. ft.; shelf area, 12.5 sq. ft. Nine pounds of ice per freezing. Eleven-point control. Attractively styled cabinet sealed against moisture.

Model TE-62 is one of many trailer refrigerators in the new SANITARY line. Like all the others, it offers gleaming good looks, capacity combined with compactness, engineered strength to absorb shock, and low-cost service. It is a completely enclosed unit that doesn't require a cabinet recess. You can easily sell it for use in apartments, homes, offices or trailers. Write for complete details.

SANITARY REFRIGERATOR CO.

FOND DU LAC, WISCONSIN

EASIEST WAY TO CLEAN CONDENSERS!

NEW Light Duty IDEAL "Hand-Type" Cleaner

Perfect for the job! Light weight, only 8¼ lbs.—easier to handle—rugged—amply powered by ½ H.P. continuous-duty motor...BLOWS or VACUUMS. Use it as a BLOWER to get out matted dirt and lint from condenser units—as a VACUUM to clean the inside of cabinets or other hard-to-reach places. Other attachments for spraying or drying. Today's best value in its class! . . . Other IDEAL "Hand-Type" Cleaners in 2/3 and 1-1/3 H.P. models.

ARRANGE FOR FREE DEMONSTRATION — SEE YOUR LOCAL IDEAL DISTRIBUTOR—OR WRITE TO

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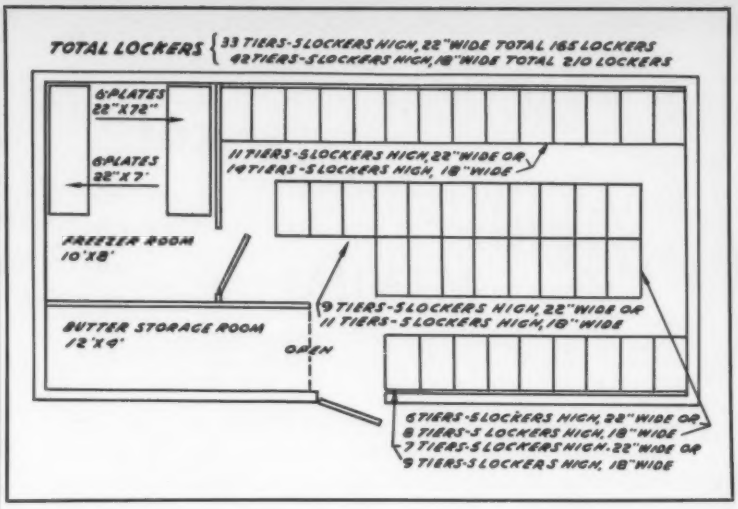
TOTAL LOCKERS { 33 TIERS-5 LOCKERS HIGH, 22" WIDE TOTAL 165 LOCKERS
42 TIERS-5 LOCKERS HIGH, 18" WIDE TOTAL 210 LOCKERS
6 PLATES 22" X 72"
6 PLATES 22" X 7'
11 TIERS-5 LOCKERS HIGH, 22" WIDE OR 14 TIERS-5 LOCKERS HIGH, 18" WIDE
FREEZER ROOM 10' X 8'
9 TIERS-5 LOCKERS HIGH, 22" WIDE OR 11 TIERS-5 LOCKERS HIGH, 18" WIDE
BUTTER STORAGE ROOM 12' X 9'
OPEN
6 TIERS-5 LOCKERS HIGH, 22" WIDE OR
8 TIERS-5 LOCKERS HIGH, 18" WIDE
7 TIERS-5 LOCKERS HIGH, 22" WIDE OR
9 TIERS-5 LOCKERS HIGH, 18" WIDE

would have a capacity of approximately 17,000 Btu at 10 degrees t.d.

If you do not wish to use banks of plate coils, a low temperature blower coil assembly can be used. However, a size must be selected that will have a capacity of at least 17,000 Btu at 10 degrees t.d. Also, these blowers must be equipped with a defrosting device for regular defrosting operation.

Because of the low gas temperature required, to operate this locker storage plant at capacity would require use of a 5-hp water cooled condensing unit with a capacity of 16,000 Btu at −20F gas. If you must for some reason use an air cooled condensing unit it would require at least two 2-hp air cooled units with a capacity of 18,000 Btu each, with −20F gas.

In the freezer room we would recommend use of a 1½-hp air cooled condensing unit with approximately 3100 Btu capacity at −30F gas. We would also suggest two banks of freezer plates, each one containing six plates, measuring 22 x 72 inches. This should provide adequate service for freezing the normal day's requirements.

Here again a blower type coil may be substituted for the freezer plates and again it would, of course, be necessary to use a defrosting element with such a blower coil and to build racks out of pipe to hold the products while in the process of being frozen.

Our understanding is that the butter storage room is to be open in the front so would be subject to the −10F temperature existing in the locker room.

We have laid out a locker arrangement and find that, by using lockers 22 inches wide and 30 inches deep, approximately 33 tiers five lockers high can be used, giving a total of 165 lockers. If you should, on the other hand, use lockers that were only 18 inches wide, 42 tiers five lockers high could be used, giving a total of 210 lockers.

We think the 18 inch lockers would be preferable in this particular installation. This would enable the use of at least 200 lockers and also allow plenty of aisle space to work in and out of the cooler, locker room, and the freezer and butter room.

As a guide to our recommendations, we have prepared the accompanying drawing showing the way we have laid out the locker tiers. We believe that this will work out quite satisfactorily for you, but have one more suggestion to make if it should be desirable to have a greater number of lockers available. By eliminating the partition in the freezer room and by installing one of the standard packaged freezer units which are made up complete with installation and can be set up in the locker room, considerably more space would be made available for additional tiers of lockers.

This fast freeze unit could be located at the extreme end of the locker room, the partition could be eliminated, and the lockers could then be continued along the back wall and through the center down to within 3 or 4 feet of this freezer unit. This would probably provide an additional 30 or 40 lockers over and above those available under the suggested layout.

This would not increase the refrigeration load in any way as the freezer unit would be placed in the —10F locker room and would have very little refrigeration load to handle other than the actual freezing load of the products.

We feel quite sure that the equipment we have suggested will work out entirely satisfactorily on this installation. We hope that this layout will be helpful to you and that you will be able to secure the order for equipment to complete this installation.

If there is any question in regard to these figures, please do not hesitate to get in touch with us.

EASY-BENDING DRYSEAL TUBE

REVERE Dryseal Copper Refrigeration Tube is uniformly soft, so that you can bend it easily . . . and it won't split at the ends when flared. It has a new type of mechanical end seal that *permanently* keeps the interior of the tube clean and dry; and the seal is compact enough to pass through any opening large enough for the tube itself. In addition, Revere Dryseal is made to new, more economical dimensional standards. And it comes to you in a new package that protects the tube, keeps it bright and clean, and is readily identifiable in stock.

Revere Dryseal Tube comes in sizes from ⅛" to ¾" O.D., and is packed two 50-foot coils to a package.

Next time you buy refrigeration tube, ask your Revere Distributor for Revere Dryseal—the easy-to-bend copper refrigeration tube that assures you of fine quality in every length you buy.

REVERE

COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801

230 Park Avenue, New York 17, New York

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Mills: Baltimore, Md.; Chicago, Ill.; Detroit, Mich.; New Bedford, Mass.; Rome, N. Y.—Sales Offices in Principal Cities, Distributors Everywhere.

More Important Than Contented Cows

0-1514

Specifically Designed For Specific Requirements

Included in the complete line of Ranco Refrigeration Controls to meet the specific requirements of milk cooler installations are three type 0 models designed especially for milk coolers.

The Ranco 0-1414 and 0-1477 are available for use when the temperature around the control may be colder or warmer than the control bulb temperature. The Ranco 0-1514 is similar to the 0-1414, but is intended for temperature applications combined with a high pressure safety cut-out.

Like all Ranco Refrigeration Controls these special application controls, which are precision-built for long life and trouble-free service, are products of over 20 years of refrigeration engineering experience and leadership. More than 20,000,000 Ranco Controls are now in use.

Your Ranco wholesaler will gladly show you the complete line of Ranco Refrigeration Controls, without obligation; see him today.

0-1414

RELY ON RANCO

- *Specialists In Refrigeration*
- *Leaders In Design Development For Over 20 Years*
- *20,000,000 Controls Now In Use—More Than Any Other Make*
- *Dependably Accurate and Trouble-Free*
- *Greater Customer Satisfaction*
- *More Profit For You*

Ranco Inc. *World's Largest Manufacturers of* **REFRIGERATION CONTROLS**

Here's how

Edited by
Warren W. Farr

Does Your Customer Want to Know . . . . ?

Every so often when you're dealing with housewives for whom you are servicing home freezers or domestic refrigerators, you may be asked a question which, while perfectly simple to you, may be a bit difficult to answer in language that your customer will understand. A couple of such questions are listed in the following paragraphs, along with suggested answers phrased in language that any layman can follow.

Question: If a freezer is not to be used for a few weeks, is it satisfactory to just disconnect the power plug?

Answer: No. First you should remove all food from the freezer and prop the box open a bit to allow air circulation in the interior while the freezer is not in use. Then, if your freezer is powered by a sealed unit, it is necessary only to pull out the plug to stop operation. If your freezer is equipped with a warning device, however, don't forget to disconnect the battery which operates the warning bell, or it will ring until the battery runs down.

Question: Why does a refrigerator seem to run continually after defrosting?

Answer: After defrosting, the refrigerating unit naturally must run longer than usual to bring the temperature down to normal. If it runs too long, however, one of three things most likely is wrong with it:

1. There may be a leak around the door seal which allows warm air to enter.

2, The condenser may be dirty, which reduces the unit's efficiency.

3. The temperature control may be faulty, thus failing to shut off the refrigeration system when the box has reached the desired temperature.

ATTENTION:
HERE'S HOW EDITOR

In your December issue of THE REFRIGERATION INDUSTRY I noticed in the "I Do It This Way" column the very dangerous way in which Mr. E. L. Minch of Portsmouth, Ohio, got out of what he calls a "dilemma" by repairing a leak on a receiver tank with a torch. This puts me in mind of the man that committed suicide but didn't want to die.

A case not so long ago similar to this was where the outlet of a drier was partially blocked. The service man shut off the liquid line at the receiver and, seeing he could not pump the liquid out of the drier because of this restriction, he applied a torch to the drier to force the liquid out. An explosion resulted and this man was painfully injured. You can imagine what could have happened to Mr. Minch, since he had to deal with much more refrigerant in the receiver tank than this party had in a small drier.

I spend most of my time in safety work for the refrigeration industry and surely hate to see information like this published as I know it is the desire of your company to help every member connected with our industry in every way possible.

George J. Schuld,
International Safety Director,
RSES, Cleveland, Ohio

HERE is an idea which I have used for years in order to get tight joints with my hermetic tools. I use fiber washers, which are the same as the washers used in motors as thrust washers. These thrust washers serve ideally as washers for hermetic tools.

Louie Jorgensen, San Diego, Calif.

Put Your Banker To Work for You

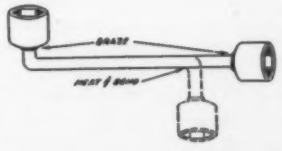
If you're looking for a new—and striking—place in which to display that packaged air conditioner, home freezer, or any other appliance which has a similar universal appeal, how about the lobby of your local bank?

Don't look so surprised! It's not impossible, you know. Many bankers are quite willing to permit such displays as a means of encouraging borrowers who wish to purchase that type of equipment. In this way you're not only helping to sell your own merchandise, but you're also helping your banker to sell his.

Raw Fur Storage

Question: Does raw fur take the same cold storage treatment as finished fur?

Answer: Raw fur should be stored at a temperature of about freezing or slightly below. This is especially necessary for storing furs in the grease. Generally, experienced furriers try to avoid storing furs in the grease because grease burns sometimes develop before the furs come into cold storage but are not detected until after the goods are dressed.



IF YOU are called upon to service a fairly steady diet of sealed units, here is a wrench (or wrenches, if you prefer more than one size) which can be readily made up and which will be found extremely useful.

Buy a cheap set of small socket wrenches at the "dime store." Then braze the two sizes most often used onto the ends of a steel rod. Then heat and bend this rod at right angles as indicated in the accompanying drawing.

This tool will surprise you with the number of places it can reach in order to get at the small nuts which are used to hold down most hermetic units on the under side.

H. J. Huber, Bothell, Wash.

WHERE TO FIND THEM

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NEW TYPHOON OUTLET

Vaughan Electric Service, Inc., Los Angeles, has been appointed distributor for Typhoon air conditioning units and equipment in the Los Angeles and central California areas.

Long established as electrical contractors, the Vaughan firm has now branched out into air conditioning. A complete division has been set up to merchandise air conditioning, water coolers, and refrigeration appliances.

REFRIGERATIVE SUPPLY MOVES TWO BRANCHES

Refrigerative Supply, Inc., refrigeration equipment wholesaling firm with headquarters in Seattle, Wash., has announced the removal of two of its branches to larger quarters.

The company's Spokane, Wash., branch has moved to 1307 N. Washington St., while the Boise, Idaho, branch has moved to 216 S. 24th Ave.

INVENTORS ESTABLISH PERMANENT EXHIBIT

A new service, designed to bring together inventors and manufacturers, has just been announced by American Inventors Exhibit, 184 W. Washington St., Chicago, Ill.

A. I. E. is opening a permanent exhibition hall in Chicago's Loop where businessmen and manufacturers may come to find new ideas and inventions to use in their businesses. New inventions in virtually every field of endeavor will be exhibited by their owners, many of which will be certain to find practical application in industry.

Anyone, regardless of race, creed or color, may exhibit any type of invention, patent, idea or plan on a permanent basis. Manufacturers are invited to see the wares of inventors from all over the country in what will be the first permanent exhibit of its kind.

NEW YEAR, NEW OFFICES

Bent Laune, president, All-State Welding Alloys Co., Inc., has announced the completion of his company's new headquarters building located at 273 Ferris Ave., White Plains, N. Y.

BOOK REVIEW

Title: **Refrigeration and Air Conditioning Engineering.**

Author: **B. F. Raber, professor of mechanical engineering, University of California, and F. W. Hutchinson, professor of mechanical engineering, Purdue University.**

Publisher: **John Wiley & Sons, Inc., New York City.**

Price: **$4.25.**

Primarily a presentation of the unchanging fundamental principles of the science of refrigeration and air conditioning, this book is designed to give the engineer, designer, or advanced student the sound background which he must have if he is to be able to apply the theory successfully to the many practical problems which arise from day to day.

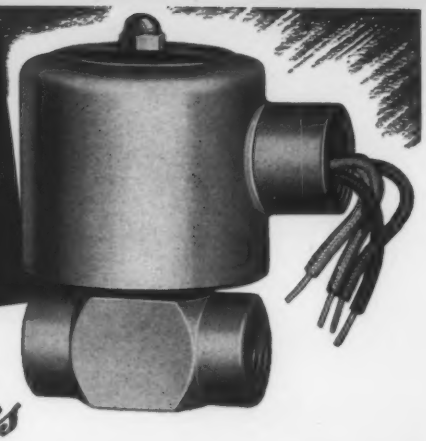
Attention is concentrated upon rational graphical procedures for solving refrigeration and air conditioning problems. The general case, rather than the specific application, is used to demonstrate the theory. Ample illustrative examples are given. Problems are grouped at the end of each chapter, as are bibliographies for reference reading.

For the convenience of the reader, pressure-enthalpy charts and trace sheets for eight of the most widely used refrigerants are included in a pocket on the inside of the back cover, along with a psychrometric chart and a friction chart for sheet metal air ducts.

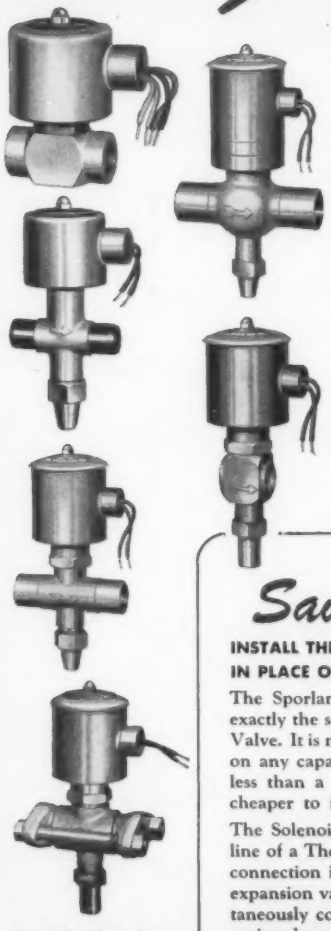
IT DOES MAKE A DIFFERENCE!

If (as that cigarette commercial on the radio has it) "modern design makes the difference", then Indiana Tempered Air, Inc., Chrysler Airtemp distributor in Indianapolis, Ind., should be 'way out in front with this fancy new sales headquarters and showroom. C. P. Meyer owns the establishment.

The Real Difference in Solenoid Valves is Performance



and only Sporlan has all these Peak Performance features!



- **Cotton Insulated Layer Wound Coil** thoroughly impregnated with a special water repellent varnish, is less susceptible to burn-outs due to moisture and high voltage.
- **Floating Plunger** prevents valve sticking open because of residual magnetism . . . also prevents humming.
- **Floating Piston in Larger Valves** prevents coil burn-outs caused by possible sticking of piston due to dirt or sludge.
- **Free Passage of Refrigerant Through Valve** assures minimum pressure drop.
- **Unusually Tight Closing** because of perfect alignment of parts.
- **All External Parts Cadmium Plated . . All Working Parts Stainless Steel** completely eliminates All Corrosion problems.
- **Accessibility of Parts** makes for easier inspection and cleaning.

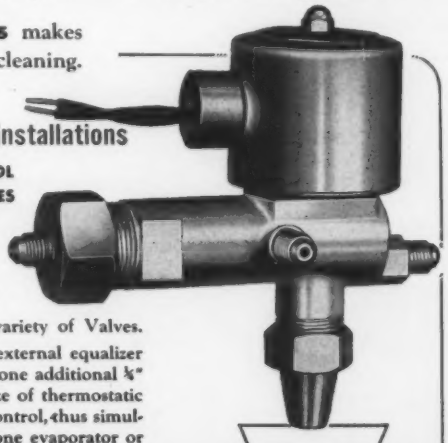
Solenoid Valves for all Liquid Line capacities up to 25 tons Freon-12...50 Tons Methyl Chloride ...40 Tons Ammonia.

Save Money on large installations

INSTALL THE SPORLAN SOLENOID PILOT CONTROL IN PLACE OF LARGE CAPACITY SOLENOID VALVES

The Sporlan Solenoid Pilot Control is used in exactly the same manner as a liquid line Solenoid Valve. It is made in only one size and can be used on any capacity job no matter how big. It costs less than a large Solenoid Valve, is easier and cheaper to install, and eliminates stocking a variety of Valves.

The Solenoid Pilot Control is connected in the external equalizer line of a Thermostatic Expansion Valve and only one additional ¼" connection is necessary. Any number and any size of thermostatic expansion valves may be connected to one pilot control, thus simultaneously controlling the action of all valves on one evaporator or entire plant. Its coil is energized through any two-wire control device.



★ **SPECIFY SPORLAN WHEN ORDERING FROM YOUR WHOLESALER AND GET PEAK PERFORMANCE ON ALL INSTALLATIONS**

Write For The Interesting Booklet **"4 MEN ON A CYCLE"**

SPORLAN

SPORLAN VALVE CO.

7525 SUSSEX AVENUE . . . SAINT LOUIS 17, MISSOURI

Bridgeport
INNER-SEAL
WEATHER STRIPPING

HELPS BANANAS KEEP COOL ON UNITED FRUIT SHIPS . . .

Maintenance of a constant optimum temperature is vital for the safe transport of highly perishable bananas and other tropical fruits. That's why Inner-seal weatherstripping was specified in the special plans drawn for a new class of all-refrigerated ships by the United Fruit Company. On the hatch plugs of the new SS Metapan, shown below, Inner-seal, with its resilient sponge rubber bead, provides an airtight, crevice-filling seal against torrid, equatorial heat. Refrigeration equipment doesn't have to work overtime to compensate for costly leaks that dissipate the cool air circulated through cargo spaces. In addition, the Inner-seal used on these ships has a neoprene coating that resists the ravages of sunlight, extreme temperature variations and salt water, thus assuring longer, more effective service under the toughest marine conditions.

Perhaps your problem isn't keeping bananas cool and calm, but if it involves keeping heat or cold, dirt or dampness in or out, you ought to have the facts on Inner-seal. Write today for data sheet giving complete information.

The SS Metapan, one of nine new all-refrigerated ships added to the Great White Fleet. In addition to cargo she can carry 12 passengers in first-class accommodations.

Tough spring steel wire moulded for life in live sponge rubber, providing unequaled flexibility for fitting sharp corners and compound curves.

Bridgeport
FABRICS, INC.
BRIDGEPORT 1, CONN.
Est. 1837

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Improve Refrigeration Efficiency with DEPENDABLE Refrigeration Valves

Enjoy New *trouble-free water control*

on your water-cooled compressors

New A-P Model 65 Water Regulating Valve. For Compressors to 6 H.P. Has 36" capillary. Operating Head Pressure, 65-185 lbs. Maximum Water Pressure, 150 lbs. with ⅜" inlet and outlet.

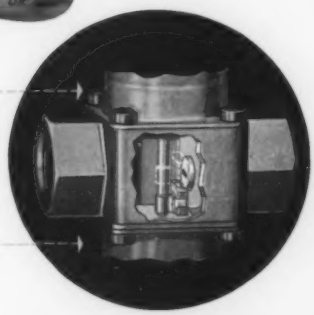
New Model 65 Water Regulating Valve "wipes itself clean" at every cycle . . .

Here's a new idea in accurate, positive, economical, water-flow control for your water-cooled condensing units..a self-cleaning valve that just can't be stopped by dirtiest water. Dirt, lime, scale and other impurities are simply wiped off the stainless steel orifice every time the sliding plastic seat moves. Avoids all common troubles due to dirt and impurities in cooling water.

But this self-cleaning advantage is only *one* important feature of the new A-P Model 65 Water Regulating Valve! It's more compact—only $4^{11}/_{16}$" x 2½" x 1½" — for easier installation in less space. It's simple to adjust to the system by means of the adjusting stem at the bottom.

The Model 65 operating principle is extremely effective and dependable. When head or receiver pressure exerted on the heavy, two-ply brass bellows is greater than the preset force of the adjustable steel spring in the lower section, the composition valve slide moves down across the stainless steel orifice to release the water flow. As pressure drops, valve moves to the closed position. Special hydraulic O-ring seals prevent water leaking into spring and bellows domes, and all parts contacting water are corrosion-proof for long-life service.

Use the new A-P Model 65 on all water-cooled compressors up to 6 H. P. size . . . . for trouble-free water regulation and customer satisfaction. Stocked now at all good Refrigeration Equipment Wholesalers. See the Model 65 at your Wholesaler or write for bulletins.



Cross section shows "self-cleaning" action. Sliding Plastic seat wipes orifice clean at each cycle.

AUTOMATIC PRODUCTS COMPANY

2488 North Thirty-Second Street • Milwaukee 10, Wisconsin

Export Dept., 13 E. 40th Street, New York 16, N. Y.

DEPENDABLE REFRIGERATION VALVES

STOCKED AND SOLD BY GOOD REFRIGERATION WHOLESALERS EVERYWHERE — RECOMMENDED AND INSTALLED BY LEADING REFRIGERATION SERVICE ENGINEERS.

You reach more than 26,000

AUTHENTICATED BUYERS

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